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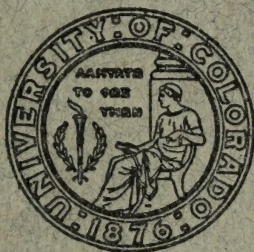
UNIVERSITY OF COLORADO BULLETIN

Vol. XX, No. 4. General Series No. 153.

Published Monthly by the Regents of the University of Colorado.
Entered at the Post Office, Boulder, Colorado, as second-class mail matter.

CATALOGUE, 1919-1920

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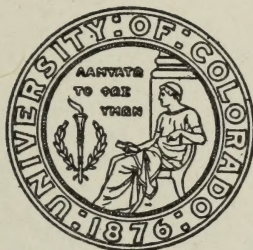
BOULDER, COLORADO, APRIL, 1920

UNIVERSITY OF COLORADO BULLETIN

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CATALOGUE, 1919-1920



BOULDER, COLORADO, APRIL, 1920

H. A.

The
University of Colorado

Catalogue, 1919-1920

With
Announcements for
1920-1921



Boulder, Colorado, April, 1920

1920

CALENDAR

1920

	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Jan.	4	5	6	7	1	2	3	May	2	3	4	5	6	7	8	Sept.	5	6	7	8	9	10	11
	11	12	13	14	15	16	17		9	10	11	12	13	14	15		12	13	14	15	16	17	18
	18	19	20	21	22	23	24		16	17	18	19	20	21	22		19	20	21	22	23	24	25
	25	26	27	28	29	30	31		23	24	25	26	27	28	29		26	27	28	29	30	--	--
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Feb.	1	2	3	4	5	6	7	June	6	7	8	9	10	11	12	Oct.	3	4	5	6	7	8	9
	8	9	10	11	12	13	14		13	14	15	16	17	18	19		10	11	12	13	14	15	16
	15	16	17	18	19	20	21		20	21	22	23	24	25	26		17	18	19	20	21	22	23
	22	23	24	25	26	27	28		27	28	29	30	--	--	--		24	25	26	27	28	29	30
	29	--	--	--	--	--	--		--	--	--	--	--	--	--		31	--	--	--	--	--	--
Mar.	--	1	2	3	4	5	6	July	--	--	--	--	1	2	3	Nov.	--	1	2	3	4	5	6
	7	8	9	10	11	12	13		4	5	6	7	8	9	10		7	8	9	10	11	12	13
	14	15	16	17	18	19	20		11	12	13	14	15	16	17		14	15	16	17	18	19	20
	21	22	23	24	25	26	27		18	19	20	21	22	23	24		21	22	23	24	25	26	27
	28	29	30	31	--	--	--		25	26	27	28	29	30	31		28	29	30	--	--	--	--
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Apr.	4	5	6	7	8	9	10	Aug.	1	2	3	4	5	6	7	Dec.	--	--	1	2	3	4	11
	11	12	13	14	15	16	17		8	9	10	11	12	13	14		5	6	7	8	9	10	11
	18	19	20	21	22	23	24		15	16	17	18	19	20	21		12	13	14	15	16	17	18
	25	26	27	28	29	30	--		22	23	24	25	26	27	28		19	20	21	22	23	24	25
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1921

CALENDAR

1921

	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Jan.	2	3	4	5	6	7	8	May	1	2	3	4	5	6	7	Sept.	--	--	--	--	1	2	3
	9	10	11	12	13	14	15		8	9	10	11	12	13	14		4	5	6	7	8	9	10
	16	17	18	19	20	21	22		15	16	17	18	19	20	21		11	12	13	14	15	16	17
	23	24	25	26	27	28	29		22	23	24	25	26	27	28		18	19	20	21	22	23	24
	30	31	--	--	--	--	--		29	30	31	--	--	--	--		25	26	27	28	29	30	--
Feb.	6	7	8	9	10	11	12	June	--	--	--	--	--	--	--	Oct.	--	--	--	--	--	--	--
	13	14	15	16	17	18	19		5	6	7	8	9	10	11		2	3	4	5	6	7	8
	20	21	22	23	24	25	26		12	13	14	15	16	17	18		9	10	11	12	13	14	15
	27	28	--	--	--	--	--		19	20	21	22	23	24	25		16	17	18	19	20	21	22
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Mar.	--	--	1	2	3	4	5	July	--	--	--	--	--	1	2	Nov.	--	--	1	2	3	4	5
	6	7	8	9	10	11	12		3	4	5	6	7	8	9		6	7	8	9	10	11	12
	13	14	15	16	17	18	19		10	11	12	13	14	15	16		13	14	15	16	17	18	19
	20	21	22	23	24	25	26		17	18	19	20	21	22	23		20	21	22	23	24	25	26
	27	28	29	30	31	--	--		24	25	26	27	28	29	30		27	28	29	30	--	--	--
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Apr.	3	4	5	6	7	8	9	Aug.	--	1	2	3	4	5	6	Dec.	--	--	--	1	2	3	10
	10	11	12	13	14	15	16		7	8	9	10	11	12	13		4	5	6	7	8	9	10
	17	18	19	20	21	22	23		14	15	16	17	18	19	20		11	12	13	14	15	16	17
	24	25	26	27	28	29	30		21	22	23	24	25	26	27		18	19	20	21	22	23	24
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ANNOUNCEMENTS

1920.

- Jan. 5, Monday.....Winter Quarter begins.
Jan. 14, Wednesday....Meeting of Board of Regents.
Feb. 12, Thursday....Lincoln's Birthday (Holiday).
Feb. 22, Sunday.....Washington's Birthday.
Mar. 20, Saturday to
Mar. 28, Sunday.....Spring Recess.
Mar. 29, Monday.....Spring Quarter begins.
April 16, Friday.....Arbor Day (Holiday).
April 21, Wednesday....Meeting of Board of Regents.
May 30, Sunday.....Decoration Day.
June 11, Friday.....Meeting of Board of Regents and Advisory Board.
Senior Class Play.
June 12, Saturday.....Class Day Exercises and Parade.
President's Reception.
Alumni Dinner and Reception.
Senior Promenade.
June 13, Sunday.....Baccalaureate Address.
June 14, Monday.....Commencement.
June 14 to July 21.....Summer Quarter (first term).
July 22 to Aug. 28....Summer Quarter (second term).
Sept. 20, Monday.....Meeting of Board of Regents.

ACADEMIC YEAR, 1920-1921

- Sept. 27, Monday.....Autumn Quarter begins; Registration (Registration begins Friday, Sept. 24).
Sept. 28, Tuesday.....Assembly of Students at 11:00.
Nov. 2, Tuesday.....General Election Day (Holiday).
Nov. 10, Wednesday....Meeting of Board of Regents.
Nov. 11, Thursday....Armistice Day (Holiday).
Nov. 25, Thursday....Thanksgiving Day (Holiday).
Nov. 26, Friday.....Holiday.
Dec. 18, Saturday to
Jan. 2, Sunday.....Winter Recess.

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1921.

- Jan. 3, Monday.....Winter Quarter begins.
Jan. 19, Wednesday....Meeting of Board of Regents.
Feb. 12, Saturday.....Lincoln's Birthday.
Feb. 22, Tuesday.....Washington's Birthday (Holiday).
Mar. 19, Saturday to
Mar. 27, Sunday.....Spring Recess.
Mar. 28, Monday.....Spring Quarter begins.
April 15, Friday.....Arbor Day (Holiday).
April 20, Wednesday....Meeting of Board of Regents.
May 30, Monday.....Decoration Day (Holiday).
June 10, Friday.....Meeting of Board of Regents and Advisory
Board.
Senior Class Play.
June 11, Saturday.....Class Day Exercises and Parade.
President's Reception.
Alumni Dinner and Reception.
Senior Promenade.
June 12, Sunday.....Baccalaureate Address.
June 13, Monday.....Commencement.
June 13 to Aug. 27.....Summer Quarter.

BOARD OF REGENTS

MINNIE LAHM HARDING.....	Canon City
Term expires 1920.	
CLIFFORD C. PARKS.....	Glenwood Springs
Term expires 1920.	
THOMAS L. WILKINSON.....	Denver
Term expires 1920.	
THOMAS T. BARNARD.....	Victor
Term expires 1922.	
CLIFFORD W. MILLS.....	Denver
Term expires 1922.	
*CHARLES R. DUDLEY.....	Denver
Term expires 1924.	
†WILLIAM J. KING.....	Denver
Term expires 1924.	
JOHN R. COEN.....	Sterling
Term expires 1920.	

OFFICERS OF THE BOARD

GEORGE NORLIN	Boulder	President
FRANK H. WOLCOTT.....	Boulder	Secretary
CHARLES H. CHENEY.....	Boulder	Treasurer

COMMITTEES OF THE BOARD

EXECUTIVE—Messrs. Parks, Wilkinson, Norlin.
 AUDITING—Messrs. Dudley, Mills, Norlin.
 BUILDINGS AND GROUNDS—Messrs. Wilkinson, Mills, Norlin.
 FINANCE—Messrs. Parks, Wilkinson, Barnard.
 LIBRARY—Mr. Dudley, Mrs. Harding, Mr. Smith.
 INSTRUCTORS—Messrs. Norlin, Wilkinson, Mrs. Harding.

* Resigned March 31, 1920.

† Died January 6, 1920.

ADVISORY BOARD*

	Town.	County.
GEORGE A. GARARD.....	Brighton	Adams Arapahoe
ALLEN J. NOSSAMAN, M.D.....	Pagosa Springs.....	Archuleta
WILLIAM HOOKER.....	Springfield	Baca
P. G. SCOTT.....	Las Animas.....	Bent
ALLEN M. LAMBRIGHT.....	Las Animas.....	Bent
THOMAS BUTLER.....	Longmont	Boulder
GEORGE H. CURFMAN, M.D.....	Salida	Chaffee
E. P. HICKMAN.....	Cheyenne Wells.....	Cheyenne
ALBERT A. STOVER.....	Idaho Springs.....	Clear Creek
FREDERICK W. SWANSON.....	Alamosa	Conejos
CHARLES GROENENDYKE.....	San Luis.....	Costilla Crowley
JOHN H. LEARY.....	Westcliffe	Custer
GEORGE STEPHAN.....	Delta	Delta
GUSTAVE C. BARTELS.....	Denver	Denver
CLAYTON C. DORSEY.....	Denver	Denver
NELSON FRANKLIN.....	Denver	Denver
IRVING HALE	Denver	Denver
HORACE N. HAWKINS.....	Denver	Denver
EDWIN H. PARK	Denver	Denver
JOHN H. GABRIEL.....	Denver	Denver
FRANK E. SHEPARD.....	Denver	Denver
JOHN W. SPRINGER.....	Denver	Denver
THOMAS B. STEARNS.....	Denver	Denver
CHARLES MACALLISTER WILLCOX....	Denver	Denver
MRS. ANNA WOLCOTT VAILE.....	Denver	Denver
JULIUS C. GUNTER.....	Denver	Denver Dolores
JOHN ANDERSON.....	Castle Rock.....	Douglas
JAMES DILTS.....	Eagle	Eagle
WILLIAM D. REILLY.....	Kiowa	Elbert
JOSEPH F. HUMPHREY.....	Colorado Springs.....	El Paso
ROBERT KERR.....	Colorado Springs.....	El Paso

* The members of the Advisory Board are appointed by the Regents for a term of one year. The service is without compensation. Annual meetings of the Advisory Board are held at the University during Commencement week.

	Town.	County.
MATT N. LINES.....	Canon City.....	Fremont
JAMES G. JOHNSTON.....	Florence	Fremont
		Garfield
CHASE WITHROW.....	Central City.....	Gilpin
DAVID P. HOWARD.....	Sulphur Springs.....	Grand
JOHN A. LEHRRITTER.....	Gunnison	Gunnison
BENJAMIN F. CUMMINGS, M.D.....	Lake City.....	Hinsdale
CHARLES HAYDEN.....	Walsenburg	Huerfano
OWEN S. CASE.....	Walden	Jackson
WILLIAM G. SMITH.....	Golden	Jefferson
RAYMOND MILLER.....	Galatea	Kiowa
WILLIAM D. SELDER.....	Burlington	Kit Carson
CHARLES A. PIKE.....	Durango	La Plata
FRANK J. ANNIS.....	Fort Collins.....	Larimer
JOSEPH C. BELL.....	Trinidad	Las Animas
EDWARD H. DAY.....	Trinidad	Las Animas
EUSEBIO CHACON.....	Trinidad	Las Animas
		Lincoln
L. K. PARR.....	Padroni	Logan
HORACE T. DELONG.....	Grand Junction.....	Mesa
		Mineral
ROBERT M. RICHARDSON.....	Craig	Moffat
LEONARD H. CLARK, M.D.....	Mancos	Montezuma
J. F. COLEMAN, M.D.....	Montrose	Montrose
FREDERICK W. LOCKWOOD, M.D.....	Fort Morgan.....	Morgan
ROBERT W. PATTERSON.....	La Junta.....	Otero
G. M. DAMERON.....	La Junta.....	Otero
WILLIAM W. ROWAN, M.D.....	Ouray	Ouray
		Park
R. G. McKIBBEN.....	Holyoke	Phillips
		Pitkin
JOHN C. HORN.....	Lamar	Prowers
C. B. THOMAN.....	Lamar	Prowers
J. K. DOUGHTY.....	Lamar	Prowers
ALVA ADAMS	Pueblo	Pueblo
P. J. DUGAN.....	Pueblo	Pueblo
JAMES LYTTLE.....	Meeker	Rio Blanco
JOHN A. BILES, M.D.....	Del Norte.....	Rio Grande
BENJAMIN F. NIESZ.....	Steamboat Springs.....	Routt

	Town.	County.
CHARLES TARBELL.....	<i>Saguache</i>	<i>Saguache</i>
JOHN T. JOYCE.....	<i>Silverton</i>	<i>San Juan</i>
STEPHEN A. BAILEY.....	<i>Telluride</i>	<i>San Miguel</i>
ETHELBERT B. ADAMS.....	<i>Telluride</i>	<i>San Miguel</i>
BERTRAND D. PARKER, JR.....	<i>Julesburg</i>	<i>Sedgwick</i>
CLARENCE O. FINCH.....	<i>Julesburg</i>	<i>Sedgwick</i>
WILLIAM F. FORMAN.....	<i>Breckenridge</i>	<i>Summit</i>
GRIFFITH R. LEWIS.....	<i>Cripple Creek</i>	<i>Teller</i>
*HAROLD D. THOMPSON.....	<i>Cripple Creek</i>	<i>Teller</i>
EGBERT MORE.....	<i>Akron</i>	<i>Washington</i>
GEORGE D. STATLER.....	<i>Greeley</i>	<i>Weld</i>
THOMAS B. GROVES.....	<i>Wray</i>	<i>Yuma</i>

* Died February 8, 1920.

COLLEGES AND SCHOOLS OF THE UNIVERSITY

I. COLLEGE OF LIBERAL ARTS:

Leading to the degree A.B.

College of Commerce:

Leading to the degree A.B. and special certificate.

College of Education:

Leading to the degree A.B. and special certificate.

College of Home Economics and Social Service:

Leading to the degree B.S.

II. COLLEGE OF ENGINEERING:

Civil Engineering, leading to the degree B.S. (C.E.).

Electrical Engineering, leading to the degree B.S. (E.E.).

Mechanical Engineering, leading to the degree B.S. (M.E.).

Chemical Engineering, leading to the degree B.S. (Ch.E.).

III. GRADUATE SCHOOL:

Leading to the degrees Ph.D., A.M., M.S., C.E., E.E.,
M.E., D.Oph., and M.S. (San. Eng.).

IV. SCHOOL OF MEDICINE:

Leading to the degree M.D.

V. SCHOOL OF LAW:

Leading to the degree LL.B.

VI. COLLEGE OF PHARMACY:

Leading to the degrees Ph.C., and B.S. (Phar.).

VII. SUMMER QUARTER.

VIII. UNIVERSITY EXTENSION DIVISION:

Department of Instruction:

Correspondence Instruction.

Class Instruction.

Vocational Instruction.

Department of Public Service:

Community Welfare.

Business and Commercial Development.

Lectures and Visual Instruction.

Americanization.

Library Extension.

Municipal Information.

Publications.

GENERAL FACULTY*

GEORGE NORLIN, Ph.D., President.

JAMES H. BAKER, A.M., LL.D., President, Emeritus.

J. RAYMOND BRACKETT, Ph.D., Professor of Comparative Literature,
Emeritus.

LUMAN M. GIFFIN, M.D., Professor of Surgery, Emeritus.

IRA M. DELONG, A.M., LL.D., Professor of Mathematics.

†THOMAS E. TAYLOR, A.B., M.D., Professor of Obstetrics, Emeritus.

ALBERT A. REED, LL.B., Professor of Law, Emeritus.

WILLIAM B. CRAIG, M.D., Professor of Surgery, Emeritus.

E. BARBER QUEAL, M.D., Professor of Physiology, Emeritus.

FRED B. R. HELLEMS, Ph.D., LL.D., Dean of the College of Liberal
Arts; Professor of Latin.

CHARLES C. AYER, Ph.D., Professor of Romance Languages.

FRANCIS RAMALEY, Ph.D., Professor of Biology.

CHARLES A. ELDER, M.D., Professor of Surgery, Emeritus.

NEWTON WIEST, M.D., Professor of Dermatology, Emeritus.

MELANCHTHON F. LIBBY, Ph.D., Professor of Philosophy.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

JOHN CAMPBELL, A.M., LL.B., LL.D., Dean of the School of Law,
Emeritus.

‡RUSSELL D. GEORGE, A.M., Professor of Geology.

JOHN D. FLEMING, A.B., LL.B., LL.D., Dean of the School of Law;
Charles Inglis Thomson Professor of Law.

JAMES R. ARNEILL, A.B., M.D., Professor of Medicine, Emeritus.

§MILO S. KETCHUM, C.E., Dean of the College of Engineering; Pro-
fessor of Civil Engineering.

CHARLES B. LYMAN, M.D., Professor of Clinical Surgery.

JOHN M. FOSTER, M.D., Professor of Oto-laryngology, Emeritus.

EDWARD JACKSON, A.M., M.D., Sc.D., Professor of Ophthalmology.

* Professors, Associate Professors, Assistant Professors, Lecturers, and Instructors are arranged in the order of appointment. Assistants rank as their departments. Within the general faculty are organized the Advisory Council, Senate, and faculties of the several schools and colleges.

† Died February 3, 1920.

‡ On leave of absence, autumn quarter, 1919-1920.

§ Resigned October 10, 1919.

HERBERT S. EVANS, E.E., Dean of the College of Engineering; Professor of Electrical Engineering.

JOHN A. HUNTER, M.E., Professor of Mechanical Engineering.

THEODORE D. A. COCKERELL, Sc.D., Professor of Zoology.

WILLIAM P. HARLOW, A.B., M.D., Dean of the School of Medicine, Emeritus.

*GEORGE M. CHADWICK, Professor of Music.

JAMES F. WILLARD, Ph.D., Professor of History.

OLIVER C. LESTER, Ph.D., Dean of the Graduate School; Professor of Physics.

FRANK E. THOMPSON, A.B., Director of the College of Education; Professor of Education.

ROSS C. WHITMAN, A.B., M.D., Secretary of the School of Medicine, Boulder Division; Professor of Pathology.

JUNIUS HENDERSON, A.B., Curator of the Museum; Professor of Natural History.

JOHN S. McLUCAS, A.M., Professor of English.

GRACE VAN SWERINGEN BAUR, Ph.D., Professor of Germanic Languages.

†CLOUGH T. BURNETT, M.D., Professor of Bacteriology.

MILO G. DERHAM, Ph.D., Director of the Summer Quarter; Professor of Greek.

LAWRENCE W. COLE, Ph.D., Director of the College of Home Economics and Social Service; Professor of Psychology.

GEORGE E. NEUHAUS, M.D., Professor of Neurology and Psychiatry.

HENRY SEWALL, Ph.D., M.D., ScD., Professor of Medicine, Emeritus.

EDMUND J. A. ROGERS, A.M., M.D., Professor of Surgery, Emeritus.

THOMAS H. HAWKINS, A.M., M.D., LL.D., Professor of Surgery, Emeritus.

ROBERT LEVY, M.D., Professor of Oto-laryngology.

WILLIAM H. DAVIS, M.D., Professor of Dermatology, Emeritus.

WILLIAM J. ROTHWELL, M.D., Professor of Medicine, Emeritus.

FRANCIS H. McNAUGHT, M.D., Professor of Obstetrics, Emeritus.

LEONARD FREEMAN, B.S., A.M., M.D., Professor of Surgery.

CHARLES A. POWERS, A.M., M.D., Professor of Surgery, Emeritus.

HERBERT B. WHITNEY, A.B., M.D., Professor of Medicine, Emeritus.

SHERMAN G. BONNEY, A.M., M.D., Professor of Medicine, Emeritus.

GEORGE B. PACKARD, M.D., Professor of Orthopedics, Emeritus.

* Resigned January 14, 1920.

† Resigned June 23, 1919.

- T. MITCHELL BURNS, M.D., Professor of Obstetrics, Emeritus.
WALTER A. JAYNE, M.D., Professor of Gynecology, Emeritus.
CHARLES B. VAN ZANT, M.D., Professor of Physiology, Emeritus.
WILLIAM C. MITCHELL, M.D., Professor of Bacteriology, Emeritus.
DAVID H. COOVER, M.D., Professor of Ophthalmology, Emeritus.
JAMES C. TODD, Ph.B., M.D., Professor of Clinical Pathology.
HOMER C. WASHBURN, B.S. (Phar.), Dean of the College of Pharmacy; Professor of Pharmacy.
ARTHUR J. MARKLEY, D.D.S., M.D., Professor of Dermatology.
LORAN D. OSBORN, Ph.D., Director of the Extension Division; Professor of Sociology.
FREDERICK A. BUSHEE, Ph.D., Director of the College of Commerce; Professor of Economics and Sociology.
RALPH D. CRAWFORD, Ph.D., Professor of Mineralogy and Petrology.
*HARRY A. CURTIS, B.S. (Ch.E), Ph.D., Professor of Physical Chemistry.
FRED G. FOLSOM, A.B., LL.B., Professor of Law.
WILLIAM R. ARTHUR, A.B., LL.B., Professor of Law.
CHARLES N. MEADER, A.B., M.D., Dean of the School of Medicine; Professor of Medicine.
*FRANK L. CLAPP, Ph.D., Professor of School Administration; High School Visitor.
ARNOLD J. LIEN, Ph.D., Professor of Political Science.
ROBERT C. LEWIS, Ph.D., Director of Henry S. Denison Research Laboratory; Professor of Biochemistry.
HERBERT S. HADLEY, A.B., LL.B., LL.D., Professor of Law.
CLARENCE B. INGRAHAM, Ph.B., M.D., Professor of Obstetrics and Gynecology.
WHITNEY C. HUNTINGTON, M.S., C.E., Professor of Civil Engineering.
CHARLES S. SPERRY, A.B., C.E., Professor of Engineering Mathematics.
JAY W. WOODROW, Ph.D., Professor of Physics.
†EDWIN W. PATTERSON, A.B., LL.B., Professor of Law.
CHARLES M. GRUBER, Ph.D., Professor of Physiology and Pharmacology.
IVAN E. WALLIN, Sc.D., Professor of Anatomy.

* Resigned October 10, 1919.

† Resigned March 9, 1920.

- GEORGE F. REYNOLDS, Ph.D., Professor of English Literature.
FRANK WILBUR CHACE, Mus.Doc., Acting Professor of Music.
OSCAR M. GILBERT, M.D., Associate Professor of Medicine.
JOSIAH N. HALL, B.S., M.D., Associate Professor of Medicine.
HOWELL T. PERSHING, M.S., M.D., LL.D., Associate Professor of
Psychiatry.
MOSES KLEINER, M.D., Associate Professor of Therapeutics.
MELVILLE BLACK, M.D., Associate Professor of Ophthalmology.
SAMUEL B. CHILDS, A.B., M.D., Associate Professor of Roent-
genology.
WILLIAM C. BANE, M.D., Associate Professor of Oto-laryngology.
OLIVER LYONS, M.D., Associate Professor of Genito-Urinary Sur-
gery.
SAMUEL FOSDICK JONES, M.D., Associate Professor of Orthopedic
Surgery.
FRANK P. GENGENBACH, M.D., Associate Professor of Pediatrics.
C. HENRY SMITH, Ph.B., Librarian; Associate Professor of Bibliog-
raphy.
CARL C. ECKHARDT, Ph.D., Associate Professor of History.
FRANK S. BAUER, M.E., Associate Professor of Mechanical Engi-
neering.
PHILIP G. WORCESTER, A.M., Associate Professor of Geology.
FRANK G. ALLEN, B.S. (M.E.), Associate Professor of Engineering
Drawing.
IVAN C. CRAWFORD, C.E., Associate Professor of Civil Engineering.
GEORGE H. LIGHT, Ph.D., Associate Professor of Mathematics.
THOMAS MAITLAND MARSHALL, Ph.D., Associate Professor of His-
tory.
OSCAR A. RANDOLPH, Ph.D., Associate Professor of Physics.
SIEBELT L. SIMMERING, M.E., Associate Professor of Steam and Gas
Engineering.
W. CLINTON DU VALL, B.S. (E.E.), Associate Professor of Electrical
Engineering.
CARBON GILLASPIE, M.D., Associate Professor of Anatomy.
FRANK E. E. GERMANN, Dr. ès Sc., Associate Professor of Chem-
istry.
JONTA BOEN MARCELLUS, B.S. (C.E.), Associate Professor of Civil
Engineering.
S. ANTOINETTE BIGELOW, A.M., Dean of Women; Assistant Profes-
sor of English Literature.

FROST C. BUCHTEL, M.D., Assistant Professor of Surgery.

EDWARD F. DEAN, M.D., Assistant Professor of Clinical Surgery.

AUBREY H. WILLIAMS, M.D., Assistant Professor of Clinical Surgery.

*MAX M. ELLIS, Ph.D., Sc.D., Assistant Professor of Biology.

WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.

PAUL M. DEAN, Ph.D., Assistant Professor of Chemistry.

**GEORGE H. CATTERMOLLE, M.D., Assistant Professor of Pediatrics.

EDWARD DELEHANTY, M.D., Assistant Professor of Neurology.

CLAUDE EDWARD COOPER, A.B., M.D., Assistant Professor of Otolaryngology.

RUDOLPH W. ARNDT, M.D., Assistant Professor of Medicine.

GEORGE A. MOLEEN, M.D., Assistant Professor of Neurology.

*FRANCIS J. PERUSSE, B.Sc., Acting Assistant Professor of Pharmacy.

WALTER F. MALLORY, B.S. (M.E.), Assistant Professor of Mechanical Engineering.

*PHILIP B. McDONALD, B.S., E.M., Assistant Professor of Engineering English.

FRANCIS WOLLE, A.M., Assistant Professor of English Literature.

†CLARENCE L. ECKEL, B.S. (C.E.), Assistant Professor of Civil Engineering.

IRENE P. MCKEEHAN, A.M., Assistant Professor of English.

ELIZA G. WILKINS, Ph.D., Assistant Professor of Classics.

JOHN B. DAVIS, M.D., Assistant Professor of Genito-Urinary Surgery.

EDWIN B. PLACE, Ph.D., Assistant Professor of Romance Languages.

W. OTTO BIRK, A.M., Assistant Professor of Engineering English.

†JAMES N. ASHMORE, Director of Physical Education.

‡HELEN MASTERS BUNTING, Director of Physical Education for Women.

JOE MILLS, Director of Physical Education for Men.

CLARE H. SMALL, A.B., Director of Physical Education for Women.

ELMORE PETERSEN, A.B., Secretary of the Bureau of Business and Commercial Development.

* Resigned June 23, 1919.

** On leave of absence, 1919-1920.

† Resigned October 10, 1919.

‡ Resigned May 24, 1919.

*ARTHUR E. GILMAN, A.B., Secretary of the Bureau of Community Welfare.

‡JAMES C. STEPHENS, A.B., Secretary of the Bureau of Vocational Instruction.

CHARLES I. MADISON, Ph.B., Secretary of the Bureau of Community Welfare, Extension Division.

HENRY R. SPANGLER, Secretary of the Bureau of Americanization, Extension Division.

OTHO B. STAPLES, A.M., Superintendent, Western Colorado District, Extension Division.

ROBERT S. MORRISON, Lecturer on Law of Mines and Mining.

†WILLARD J. WHITE, A.M., M.D., Lecturer on Medical Jurisprudence.

JAMES W. MCCREERY, Lecturer on Law of Irrigation and Water Rights.

JOHN E. ROBINSON, Lecturer on Bankruptcy.

HARRY S. SILVERSTEIN, A.B., Lecturer on Criminal Procedure.

HENRY E. LUTZ, LL.B., Lecturer on Equity Pleading and Practice.

JOHN H. FRY, LL.B., Lecturer on Auxiliary Code Remedies.

JAMES H. PERSHING, A.B., Lecturer on Medical Jurisprudence.

ARTHUR H. EARLEY, M.D., Lecturer on Rectal Surgery.

ORA S. FOWLER, B.S., M.D., Lecturer on Local Anaesthetics.

ARTHUR W. FITZGERALD, A.B., LL.B., Lecturer on Conveyancing and Abstracts.

WILLIAM C. FINNOFF, M.D., D.Oph., Lecturer on Ophthalmology.

ELSIE S. PRATT, M.D., Medical Adviser to Women.

FRANK R. SPENCER, A.B., M.D., Instructor in Oto-laryngology.

CLAY E. GIFFIN, A.B., M.D., Instructor in Surgery.

CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.

LORENA UNDERHILL, A.M., Instructor in Philosophy.

CLARIBEL KENDALL, A.M., Instructor in Mathematics.

CHARLES M. McCORMICK, E.E., Instructor in Electrical Engineering.

HENRY WILLIAMS WILCOX, M.D., Instructor in Orthopedic Surgery.

CYRUS L. PERSHING, B.S., M.D., Instructor in Neurology.

ROBERT L. CHARLES, M.D., Instructor in Anaesthesia.

WILLIAM H. CRISP, M.D., D.Oph., Instructor in Ophthalmology.

EDWARD R. MUGRAGE, A.M., M.D., Director of Laboratories (Denver); Instructor in Pathology.

* Resigned October 10, 1919.

‡ Resigned June 23, 1919.

† On leave of absence for war service.

ERSKINE R. MYER, A.B., Instructor in English.

*WILLIAM WILEY JONES, A.B., M.D., Instructor in Medicine.

MAUD E. CRAIG, A.M., Instructor in Latin.

GEORGE P. LINGENFELTER, M.D., Instructor in Dermatology and Syphilis.

GLADYS C. CURTIS, A.M., Instructor in Education.

†ALICE DOWNING HUNTER, A.M., Instructor in Engineering English.

OLIN INGRAHAM, A.M., Instructor in Economics.

JOHN W. RENNELL, Instructor in Art.

BESSIE R. GREEN, A.M., Instructor in Biology.

SUSAN BLAKEY, A.B., B.S., Instructor in Home Economics.

JOHN MURRAY BARNEY, M.D., Instructor in Medicine.

CASPER F. HEGNER, M.D., Instructor in Surgery.

OSCAR M. SHERE, M.D., Instructor in Surgery.

CUTHBERT POWELL, M.D., Instructor in Gynecology.

FOSTER H. CARY, M.D., Instructor in Obstetrics.

CHARLES A. FERRIS, M.D., Instructor in Obstetrics.

HARRY L. BAUM, M.D., Instructor in Oto-laryngology.

BRYANT SMITH, A.M., LL.B., Instructor in Law.

HORACE B. VAN VALKENBURGH, M.S., Instructor in Chemistry.

BENJAMIN D. CORNELL, A.M., Instructor in Chemistry.

WAYNE S. BEATTIE, B.S. (M.E.), Instructor in Mechanical Engineering.

EVA M. BAUM, A.B., Instructor in Chemistry.

CLARA HISCOCK BRACE, A.B., Instructor in Education.

TRACY R. LOVE, Ph.B., M.D., Instructor in Dietetics.

HENRY M. SAYRE, Instructor in Accounting.

JOHN A. McCAW, M.D., D.Oph., Instructor in Ophthalmology.

WILLIAM A. SEDWICK, M.D., Instructor in Ophthalmology.

HIRAM R. STILWILL, M.D., Instructor in Ophthalmology.

MAY SNYDER, A.M., Instructor in Romance Languages.

WALDO E. BROCKWAY, B.S. (C.E.), Instructor in Civil Engineering.

WILLIAM F. BRUBAKER, B.S. (C.E.), Instructor in Engineering Drawing.

FLORENCE M. FARRINGTON, A.M., Instructor in Romance Languages.

CHARLES A. HUTCHINSON, A.M., Instructor in Engineering Mathematics.

* On leave of absence for war service.

† Died January 5, 1920.

*ALBERT S. ROMIG, B.S. (M.E.), Instructor in Engineering Mathematics.

WILLIAM WARREN HOWE, A.B., Instructor in Chemistry.

HUGH M. KINGERY, Ph.D., Instructor in Anatomy.

**ELLERT L. McGRATH, B.S. (C.E.), Instructor in Engineering Mathematics.

FRED R. DUNGAN, B.S., Instructor in Civil Engineering.

GEORGE C. MANN, A.B., Vocational Instructor, Extension Division.

JOHN J. FALLON, C.E., Vocational Instructor, Extension Division.

CLEOPHILE B. DEAN, Ph.D., Instructor in Romance Languages.

CHARLES R. BURLINGAME, B.S. (M.E.), Instructor in Mechanical Engineering.

MERVIN S. COOVER, E.E., Instructor in Electrical Engineering.

ROBERT H. CANFIELD, B.S. (C.E.), Instructor in Civil Engineering.

EMMETT B. CARMICHAEL, A.B., Instructor in Chemistry.

LEE T. CASEY, Instructor in Journalism.

EDNA L. JOHNSON, A.B., Instructor in Biology.

MAURICE KATZMAN, M.D., Instructor in Bacteriology.

BENJAMIN FORD KITCHEN, A.B., Instructor in English.

MURRAY F. SKINKER, B.S. (E.E.), Instructor in Engineering Mathematics.

HENRY MILLER, C.E., Instructor in Engineering Drawing.

PAUL HUNTZICKER, A.B., Instructor in Engineering Mathematics.

EDNA DAVIS ROMIG, A.B., Instructor in English.

MARGARET SCHULTZ, A.B., Instructor in Physical Education for Women.

REBECCA W. VAILLE, A.B., Instructor in English.

LEONA VINCENT, A.B., Instructor in Psychology.

ARTHUR H. WARNER, A.B., Instructor in Physics.

**NORMA E. LeVEQUE, A.B., Instructor in Biology.

†CLAUDE N. SETTLES, A.B., Instructor in Engineering English.

†WALTER K. NELSON, B.S. (E.E.), Instructor in Engineering Mathematics.

‡ERHARDT A. FROESE, B.S. (Ch.E.), Instructor in Engineering Mathematics.

†HERBERT C. HANSON, A.M., Instructor in Biology.

* Died October 8, 1919.

** Resigned February 16, 1920.

*** Resigned December 19, 1919.

† Appointed January 14, 1920.

‡ Appointed February 16, 1920.

- MARJORIE FLEMING, A.B., Assistant in Romance Languages.
KENNETH MACK WILLSON, A.B., Assistant in Geology.
MELVIN C. COLLINS, A.B., Assistant in Geology.
HENRY A. PAGE, Assistant in Electrical Engineering.
DONALD H. TIPPETT, Assistant in Engineering English.
CHESTER B. ASHCRAFT, Assistant in Mechanical Engineering.
*WILLIAM R. LEWIS, A.M., Assistant in History and in English.
MARY STELLA HALL, A.B., Assistant in Education.
ANNIE LAURIE WILLETT, A.B., Assistant in Psychology.
HOWARD C. BERESFORD, A.B., Assistant in Physical Education.
RAMA VIRGINIA BENNETT, B.S., Assistant in Home Economics.
HAZEL D. JAQUISS, Ph.G., Assistant in Pharmacy.
FRANK C. KENNELLY, M.D., Assistant in Medicine.
ELMERT T. BOYD, M.D., Assistant in Ophthalmology.
WILLIAM M. BANE, M.D., Assistant in Oto-laryngology.
JAMES M. SHIELDS, M.D., Assistant in Ophthalmology.
-
- FRED E. HAGEN, A.B., Secretary and Registrar.
†F. GRACE HALL, A.B., Assistant Registrar.
DOROTHY H. FRY, A.B., Assistant Registrar.
HOPE CLEVELAND, A.B., Assistant Recorder.
FRANK H. WOLCOTT, B.S., Secretary of the Board of Regents and
Bursar.
ROLAND L. DICKENSHEETS, Assistant Bursar.
C. HENRY SMITH, Ph.B., Librarian.
EMMA A. JACKSON, A.B., Assistant Librarian.
ELIZABETH F. SELLECK, A.B., Assistant Librarian.
GRACE BLACK, Assistant in Engineering Library.
CICELY SHERWOOD, Law Librarian.
‡H. SPENCER GELTZ, Secretary Teachers Appointments Office.
ALMA GABRIEL, A.B., Secretary of the Bureau of Correspondence
Instruction.
AMY MUSE, A.B., Office Secretary, Extension Division.
JOSEPH KLEMME, Superintendent of Buildings and Grounds.

* Resigned December 19, 1919.

† Resigned January 14, 1920.

‡ Died February 22, 1920.

GENERAL STATEMENT

HISTORY

The University of Colorado was incorporated by an act of the First Territorial Legislature of Colorado, in 1861, and the location fixed at Boulder. The act states that the University was "designated to promote and encourage the diffusion of knowledge, in all the branches of learning, including the scientific, literary, theological, legal and medical departments of instruction". A board of trustees with needful powers was constituted, but never met to transact business. A second act of the year 1870 revived the project of a university at Boulder and reconstituted the board of trustees. In 1872, three public-spirited citizens of Boulder gave the University fifty-two acres of land adjoining the city. In 1874, the Territorial Legislature appropriated \$15,000 to the University, conditioned on the raising by the trustees of an equal amount "by subscription, donation, or otherwise". The trustees having met this condition, the first installment of the appropriation was paid on June 7, 1875. Plans for the erection of a building were then made. In 1875, Congress "set apart and reserved for the use and support of a state university" seventy-two sections of public lands. The Constitution of Colorado, adopted in 1876, made the "University at Boulder" an institution of the State, thus entitling it to the lands appropriated by Congress, and provided for its management and control, as follows: "The Board of Regents shall have the general supervision of the University, and the exclusive control and direction of all funds of, and appropriations to, the University". The University is supported by the proceeds of a fractional mill tax and by special appropriations.

The Institution was opened September 5, 1877, with two departments, Preparatory and Normal. After a few years the Normal department was dropped, and in 1907 the Preparatory department was discontinued. The University comprises the following schools and colleges: College of Liberal Arts, 1878; School of Medicine, 1883; Graduate School, 1892; School of Law, 1892; College of Engineering, 1893; Summer Session, 1904; College of Commerce, 1906; College of Education, 1908; College of Pharmacy, 1911; University

Extension Division, 1912; and School of Social and Home Service, 1912, changed to the College of Home Economics and Social Service in 1918. The Summer Session was increased to a full quarter in 1919.

SITUATION

The University is situated at Boulder, a city of 12,000 inhabitants, about thirty miles north from Denver. The Denver and Interurban Railway, with hourly electric service, and the Colorado and Southern and Union Pacific railways connect Boulder and Denver.

BUILDINGS AND GROUNDS

The University campus comprises sixty acres; Stratton Field, northeast of the main campus and about one-quarter mile distant, twelve acres. The University buildings are Heating, Lighting and Power Plant, Macky Auditorium, Library, Woodbury Hall, Women's Building, Men's Building, Gymnasium, President's House, Liberal Arts Building, Hale Science Building, Chemistry Building, New Science and Museum Building, Engineering I, Engineering II, Shops Building, Medical Building, Henry S. Denison Memorial Building, Hospital, Nurses' Home, Isolation Hospital, Simon Guggenheim Law Building, Pharmacy Building. Of these, nineteen have been erected by the State, and the Macky Auditorium, the Henry S. Denison Memorial Building, and the Simon Guggenheim Law Building have been erected by private benefaction. For the use of the third and fourth years of the School of Medicine, a building located at Thirteenth and Welton Streets, Denver, is rented.

LIBRARY

The Library numbers 118,681 volumes, 27,000 pamphlets, and 2,011 maps. Direct access to the shelves is the rule. The main library is open to all during term time from 7:45 a. m. to 10:00 p. m., week days, except Friday and Saturday, when the closing hour is 9:00 p. m. Vacation hours are 9:00 a. m. to 5:00 p. m., week days.

The main library occupies the central portion of the Library Building; 86,246 books are shelved within its walls. Three hundred people may be seated at the different reading tables at one time. A card catalogue numbering upwards of 244,622 cards, giving authors and subjects, directs seekers to books or portions thereof.

Departmental libraries are maintained for Biology, Chemistry, Denison Research Laboratory, Education, Engineering, Geology, Ger-

manic Languages, Law, Mathematics, Museum, Music, Pharmacy, Physics, and School of Medicine (Denver). Through this system 32,435 volumes upon special subjects are deposited in the building where the particular subject is taught.

Through library extension, books not in actual demand for resident use may be borrowed by citizens of Colorado.

ENTRANCE

Persons intending to enter the University must present their credentials to the Registrar before registration. They should not actually come to the University unless they have been assured in writing by the Registrar that they can be admitted. Certificates from accredited high schools, signed by the proper authorities and indicating the character and extent of the work completed, are accepted. Certificates of the New York State Board of Regents and similar bodies and of the College Entrance Examination Board and credits of a non-accredited high school may be accepted provisionally, full standing being conditional on the subsequent work of the student concerned.

Students seeking advanced standing must present in addition to the above an official record of their college or university work, a marked catalogue, and a letter of honorable dismissal from the institution last attended. Real equivalents will be accepted. Advanced standing will not be definitely determined until the student has completed at least one quarter's work in this University.

No statement of the entrance status of an applicant can be given by the Registrar until he has before him complete credentials.

Students are earnestly advised to be present at the opening of a quarter. In the School of Medicine no student will be allowed to enter later than the second Monday after the opening of the University.

An information bureau for the convenience of new students may be found in the Registrar's office in the Macky Auditorium. The rooms of the Christian Associations, and of the Women's League are open for the reception of students during the opening days of the University.

The Registrar's office is open for registration, beginning Friday morning preceding the opening day of the University. All students are requested to register as soon as possible. Students continuing

work in the department in which they have been previously enrolled, register first with the Dean and then with the Registrar. New students, and old students transferring from one department to another, register first in the Registrar's office.

REQUIREMENTS FOR ADMISSION

THE COLLEGE OF LIBERAL ARTS, COLLEGE OF COMMERCE, COLLEGE OF EDUCATION, AND COLLEGE OF HOME ECONOMICS AND SOCIAL SERVICE

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school and *must present fifteen acceptable units*. Applications from candidates who have completed an equivalent amount of work under other conditions will be considered on the merits of each case; in general, such candidates will be expected to pass entrance examinations.

Certificates of moral character may be required from all applicants.

Entrance conditions will not be allowed beyond one unit, and then only upon recommendation of the principal of the school from which the candidate graduated. This applies to all students, including graduates of commercial and other courses wherein some of the subjects are not accepted for University matriculation.

Candidates with fifteen acceptable units, coming from a standard four-year high or preparatory school, who are not graduates, may be admitted on the recommendation of the principal.

A unit course of study is defined as a course covering a school year of not less than thirty-six weeks, with five periods of at least forty-five minutes each per week, two periods of manual training or laboratory work being equivalent to one period of classroom work. This is equivalent to one hundred and eighty actual "periods" per unit. The fifteen units are equivalent to thirty "points".

The fifteen units should be distributed as follows:

Mathematics	2
Languages other than English.....	4
English	3
History	2
Science	2
Electives	2

Electives may be chosen from the following: Mathematics, 2; Greek, 2; Latin, 2; French, 2; German, 2; Spanish, 2; History, 2; English, 1; Science, 2; Psychology, $\frac{1}{2}$. From the following group, subject to special accrediting by the University, not more than four units: Drawing, 1; Manual Arts, 2; Domestic Science, 2; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Commercial Law, $\frac{1}{2}$; Elementary Economics, $\frac{1}{2}$; Bookkeeping, 1.

Students who do not present the units specified in the above table of requirements for admission, but who do present fifteen acceptable units, will be regularly admitted. Such students will, however, be required to elect in College courses that will fulfill the requirements specified, e. g., if a student enters with but two units of Language other than English, then he must include in his College course the equivalent of two units in foreign language. This provision materially widens the scope of electives that will be accepted for College entrance.

1. Half units will not be accepted in Physics and Chemistry.
2. Students who present three units of Greek are required to present only one unit of Science, but they must have a total of fifteen units.
3. For the foreign language requirement not more than two languages can be presented. Four units of Latin are preferred, at least two units urgently advised.

Special Students.

Persons of mature years, even if they are unable to meet the entrance requirements, may be admitted to certain courses on the approval of the departments concerned and the Committee on Courses. In no case will applications be considered from persons who are not twenty-one years of age. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

THE COLLEGE OF ENGINEERING

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school, or to have completed a corresponding amount of work under other conditions.

While the regular time for entrance to the College of Engineer-

ing is the opening of the autumn quarter, the subjects are repeated in such a manner that students entering at the opening of other quarters may proceed with their work without serious loss of time.

Students may be admitted on the passing of satisfactory examinations or on the presentation of certificates from an accredited high school. Applications from graduates of a non-accredited school will be considered as the merits of each case may warrant; but full standing in such instances shall be conditional upon the subsequent work of the student concerned.

Certificates of moral character may be required from all applicants for admission.

Fifteen units are required for admission. Entrance conditions will not be allowed beyond the equivalent of one unit. For the definition of "unit" see page 27.

The fifteen units should be distributed as follows:

Specified requirements—

Mathematics (Algebra, Plane and Solid Geometry) .	3	
Languages, other than English.....	2	
English	3	
History	2	
Physics	1	
		— 11
Electives	4	
		— 15

Electives may be chosen from the following: Mathematics, 2; Greek, 3; Latin, 3; French, 3; German, 3; Spanish, 3; History, 2; English, 1; Science, 3; Civics, ½; Economics, ½; Psychology, ½. From the following group, subject to special accrediting by the University, not more than three units: Drawing, 2; Manual Training, 2; Agriculture (Introductory Science), 1; Commercial Geography, ½; Stenography, 1; Bookkeeping, 1; Commercial Law, ½.

Students who do not present all of the eleven specified units but who do present additional units from the elective group sufficient to make a total of fifteen acceptable units may be admitted. However, such students must fulfill the specified requirements by additional work after admission.

If an entrance condition is allowed in Mathematics, this subject

must be taken during the first and second quarters. If a condition is allowed in another subject, it must be removed before the beginning of the second year.

Although Chemistry is not required for entrance, it is highly desirable that this subject be taken in high school. Half units will not be accepted in either Chemistry or Physics.

Special Students.

Mature candidates, more than twenty-one years of age, who have had satisfactory preparation in algebra, geometry, physics, and English may be admitted as special students. Special students pursue the regular course and are required to remove their entrance deficiencies within two years. No one may enroll in the College of Engineering as a special student for more than two years except on the approval of the Dean and a vote of the Faculty.

THE GRADUATE SCHOOL

Graduates of any college or scientific school of equal rank with the University of Colorado are admitted upon presentation of certificates of graduation. Students from other institutions should present their credits to the Registrar for rating. See also, page 189.

THE SCHOOL OF MEDICINE

Candidates for admission must fulfill the entrance requirements of the College of Liberal Arts, as given in detail on page 27, and present in addition ninety term hours (or sixty semester hours) of collegiate work in a college approved by a recognized accrediting agency. No part of the ninety term hours may be made up of credit in physical education. The following subjects are prescribed: one year of Latin, one year each of college chemistry, physics, biology, a modern foreign language, English, and a course in organic chemistry. It is desirable that work in inorganic chemistry include qualitative or quantitative analysis or both. No entrance conditions are allowed.

Not more than thirty students will be admitted to any class.

Certificates of moral character may be required from all applicants for admission.

Students are earnestly advised to be present at the opening of the session. For the session 1920-1921, no student will be allowed to enter later than Monday, October 11, 1920.

Special Students.

Mature students, not candidates for the degree of M.D., who can give satisfactory evidence of their qualifications to pursue certain advanced courses, may be admitted as special students. No student should come to the University with the expectation of entering as a special student unless he has been previously assured *in writing* by the Registrar that there is a reasonable prospect of his being admitted.

THE SCHOOL OF LAW

Candidates for admission must fulfill the entrance requirements of the College of Liberal Arts, as given in detail on page 27, including at least two units of Latin; and present in addition, two years of college work estimated at ninety term hours, in addition to the required physical education. The college work must include a thorough course in English Political or Constitutional History, and the equivalent of at least nine hours of English Composition and Rhetoric.

All candidates must present certificates of good moral character.

Special Students.

Persons twenty-one years of age, who cannot satisfy the admission requirements but are qualified to pursue special work, may be admitted to certain courses, though not as candidates for a degree, on approval of the proper committee of the faculty. Special students may be excluded at any time after entrance for unsatisfactory class work. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

THE COLLEGE OF PHARMACY

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school and *must present fifteen acceptable units*. Applications from candidates who have completed an equivalent amount of work under other conditions will be considered on the merits of each case; in general, such candidates will be expected to pass entrance examinations.

Certificates of moral character may be required from all applicants.

Entrance conditions will not be allowed beyond one unit and then only upon recommendation of the principal of the school from which the candidate graduated. This applies to all students including graduates of commercial and other courses wherein some of the subjects are not accepted for University matriculation. Entrance conditions must be removed before entering upon the work of the second year.

Candidates with fifteen acceptable units, coming from a standard four-year high or preparatory school, who are not graduates, may be admitted with the consent of the principal.

It is highly important that entrance Chemistry be completed before entering the College of Pharmacy. Students conditioned in this subject will probably require one or more additional quarters of residence at the University. Latin is difficult to make up and at least one year should be completed before the student begins his college course.

For definition of "unit", see page 27.

The fifteen units should be distributed as follows:

Mathematics	2
Latin	1
English	3
History	2
Science (one unit of Chemistry required).....	2
Electives	5
	<hr/>
	15

Electives may be chosen from the following: Mathematics, 2; Greek, 2; Latin, 3; French, 2; German, 2; Spanish, 2; History, 2; English, 1; Science, 2; Psychology, $\frac{1}{2}$. From the following group, subject to special accrediting by the University, not more than four units: Drawing, 1; Manual Arts, 2; Domestic Science, 1; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Elementary Economics, $\frac{1}{2}$; Commercial Law, $\frac{1}{2}$; Bookkeeping, $\frac{1}{2}$.

Half units will not be accepted in Physics and Chemistry.

Special Students.

Persons twenty-one years of age, who cannot satisfy the admission requirements but are qualified to pursue special work, may be admitted to certain courses on approval of the proper committee of

the faculty. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

ACCREDITED SCHOOLS*

Akron (Washington County)	Denver: East Side Manual Training North Side South Side West Side St. Mary's Acad- emy The Wolcott School	Holyoke (Phillips County) Hotchkiss Idaho Springs Julesburg (Sedg- wick County) Lafayette La Junta Lamar (Union) La Porte (Cache La Poudre) Las Animas (Bent County) Leadville Littleton Longmont Louisville Loveland Mancos Manitou Meeker (Rio Blanco County) Monte Vista Montrose (Montrose County) Ouray (Ouray County) Palisades: Mount Lincoln Palisade Paonia
Alamosa	Durango	
Arvada	Eaton	
Aspen	Englewood	
Berthoud	Flagler	
Boulder (State Preparatory)	Florence	
Breckenridge	Fort Collins	
Brighton	Fort Morgan	
Brush (Union)	Fountain	
Buena Vista	Fowler	
Burlington	Fruita (Union)	
Canon City: Canon City South Canon	Georgetown	
Castle Rock (Douglas County)	Glenwood Springs (Garfield County)	
Center (Joint Consolidated)	Golden	
Central City (Gilpin County Union)	Grand Junction: Fruitvale Grand Junction	
Cheyenne Wells (Cheyenne County)	Greeley	
Colorado City	Gunnison (Gunnison County)	
Colorado Springs	Gypsum	
Cripple Creek	(Eagle County)	
Debeque	Holly (Union)	
Delta		

* Alphabetically by postoffices.

Pueblo:	Salida	Victor
Centennial (District No. 1)	Silverton	Walsenburg (Huerfano County)
Central (District No. 20)	Steamboat Springs	Wheatridge
Rifle (Union)	Sterling (Logan County)	Windsor
Rocky Ford	Telluride	Wray (Yuma County)
Saguache (Saguache County)	Trinidad	

TUITION AND FEES*

INCIDENTAL FEE.

Annual fee for all students in all the colleges and schools (except the Denver Division of the School of Medicine, \$3.00)\$ 6.00

DIPLOMA FEE (For candidates for all except Graduate degrees.)\$ 5.00

COLLEGES OF LIBERAL ARTS, COMMERCE, EDUCATION, AND HOME ECONOMICS AND SOCIAL SERVICE.

Matriculation (paid once)\$ 5.00

Tuition, resident, per quarter..... 10.00

Tuition, non-resident, per quarter..... 15.00

Laboratory fees, collected *each quarter* from students who take the particular courses. [These fees include breakage deposits, etc., as well as charges for material.]

Art:

A deposit of \$5.00 is required in all laboratory courses in addition to the fee.

Advanced Color and Design..... 3.50

Advanced Portraiture and Figure Drawing..... 8.00

Elementary Color and Design..... 3.50

Elementary General Art Course..... 2.50

Lecture Courses:

Color, Composition, etc..... 1.00

Freehand Drawing 1.00

Ornament, Conventionalization, etc..... 1.00

The House, its Furnishing and Decoration..... 1.00

* Special breakage charges may be collected whenever necessary in any laboratory department of the University.

Biology:

Animal or Human Physiology (lectures not counted), per credit hour.....	\$ 2.00
Botany, per credit hour.....	.75
Entomology, per credit hour.....	.75
Microbiology, per credit hour.....	2.00
Plant Physiology (lectures not counted), per credit hour	1.50
Vertebrate Anatomy, per credit hour.....	1.50
Zoology, per credit hour.....	1.00

Chemistry (Lecture hours are not counted):

General Inorganic, per credit hour, 25 per cent. returnable	2.75
Organic Preparations, per credit hour, 25 per cent. returnable	2.75
Qualitative Analysis, per credit hour, 25 per cent. returnable	2.75
All other courses, per credit hour, 25 per cent. returnable	1.75

Education:

Pedagogical library fee for each pedagogical course requiring duplicate books.....	1.00
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Geography:

Physiography, for field trips and maps, unused part returnable	5.00
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Geology:

General Geology, per year, 25 per cent. returnable	5.00
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Home Economics:

Dietetics	5.00
Dressmaking	1.00
Elementary Foods	4.00
Garment Making	1.00
Household Management	2.00
Meal Planning and Serving.....	5.00
Selection and Preparation of Foods.....	4.00

Mineralogy:

Advanced Mineralogy, 25 per cent. returnable...	4.00
Economic Mineralogy, 25 per cent. returnable..	4.00
Fire Assaying, 25 per cent. returnable.....	10.00

Physics, all laboratory courses, 33 $\frac{1}{3}$ per cent. returnable at end of course.....\$ 3.00

Psychology:

Experimental Psychology 1.00

COLLEGE OF ENGINEERING.

Matriculation (paid once)..... 5.00

Tuition, resident, per quarter..... 10.00

Tuition, non-resident, per quarter..... 15.00

For laboratory fees in Engineering courses, see page 140.

GRADUATE SCHOOL.

Matriculation (not required of graduates of this University or of instructors or of graduate students in the Summer Session, paid once)..... 10.00

Diploma fee 10.00

Tuition, per year, for courses in Ophthalmology.....100.00

SCHOOL OF MEDICINE.

Tuition, resident, per quarter..... 30.00

Tuition, non-resident, per quarter..... 40.00

Laboratory deposit, per year, paid by all first and second year students to cover breakage and excessive and unreasonable use of material..... 10.00

Immunity, per year, unused part returnable..... 5.00

Operative Surgery 5.00

SCHOOL OF LAW.

Tuition, per quarter 18.00

COLLEGE OF PHARMACY.

Matriculation (paid once) 5.00

Tuition, resident, per quarter..... 10.00

Tuition, non-resident, per quarter..... 15.00

Laboratory fees in Pharmacy per credit hour of laboratory work, 25 per cent. returnable..... 5.00

Pharmacology, 25 per cent. returnable..... 10.00

Physiology, 25 per cent. returnable..... 2.00

For fees in other courses see Chemistry, Botany, etc.

SUMMER QUARTER.

For Summer Quarter fees, see page 274.

EXTENSION FEES.

For Extension fees, see pages 286, 288.

NOTE—Matriculation fees will not be refunded. Students with-

drawing from the University will be charged 25 per cent. of the quarter's tuition and incidental fee for each week for the first two weeks of attendance in any quarter. After that time no refund will be made.

LIVING EXPENSES

The average price of board, room, light, and fuel may be placed at from \$8.00 to \$14.00 a week. Day board in boarding houses and city restaurants varies from \$6.50 to \$9.00 a week. The rent for furnished rooms varies from \$6.00 to \$20.00 a month. As a rule a room costing more than \$10.00 a month may be occupied by two students. Facilities for light housekeeping enable students to lessen expenses materially. Boarding clubs are organized and are open to new students.

The following table shows the estimated annual expenses of students of the University, excluding clothing and traveling expenses; the expense varies with the course pursued, and also depends, naturally, upon the tastes and habits of the individual.

Board	\$220.00 to \$306.00
Room	40.00 to 170.00
Books, instruments, and stationery.....	10.00 to 60.00
Laundry	9.00 to 36.00
Tuition and fees.....	24.00 to 156.00
Incidentals	25.00 to 75.00
<hr/>	
\$328.00 to \$803.00	

The items for books and fees are high in the second table because they are estimated on the basis of a liberal allowance for students in the Schools of Medicine and Law.

The University has no dormitories and no boarding facilities. See also page 40.

Information concerning the location of rooming and boarding places may be had at the office of the Registrar or from the secretaries of the University Christian Associations. Women students should consult also the Dean of Women. Inquiries concerning expenses should be directed to the Registrar.

EMPLOYMENT

While the University does not undertake to find employment for students, yet every assistance possible is given by University

officers. The Registrar cooperates with the secretaries of the two Christian Associations, each of which conducts an employment bureau.

No general information can be given concerning employment because the personal capacity, efficiency, and energy of the student concerned and the time which he can devote to outside work are controlling factors.

Prospective students should not come to the University unless they have, at the time of entering, enough money to pay a reasonable part of the first quarter's expenses. A few students are able to earn enough money to pay all of their expenses, but the attempt to do this frequently involves a sacrifice of health or scholarship.

Inquiries concerning employment should be directed to the Registrar.

TEACHING FELLOWSHIPS

Twelve University teaching fellowships, each yielding \$300 per annum, are open to graduates of colleges and universities of recognized standing.

SCHOLARSHIPS

HIGH SCHOOL HONOR SCHOLARSHIPS

Scholarships, consisting of a remission of the annual tuition (\$30.00) for four years in the Colleges of Liberal Arts, Engineering, and Pharmacy, are granted to graduates of four-year high schools of Colorado, upon recommendation of the principal, according to the following plan:

To graduating classes of ten or less one scholarship to either the first or second in rank; to classes of from ten to twenty-five, one scholarship to one of the first three in rank; to classes of twenty-five to fifty, two scholarships to any of the first six in rank; to classes of fifty to one hundred, three scholarships to any of the first nine in rank; to classes of over one hundred, four scholarships to any of the first twelve in rank.

A scholarship is forfeited whenever the student's yearly average falls below 80 per cent.

THE EDWARD G. STOIBER SCHOLARSHIP

The Edward G. Stoiber Scholarship Fund consists of the principal sum of \$2,000 held in trust, the income of which is given each year to some student in the School of Medicine, designated by the donor or by the officers of the school. This scholarship was estab-

lished in The Denver and Gross College of Medicine by Mrs. Edward G. Stoiber in memory of the late Edward G. Stoiber. Under the terms of the merger agreement between The Denver and Gross College and the University of Colorado this fund has been transferred to the Regents, to be held in perpetuity for the purposes specified.

THE GARDINER-ODELL SUMMER SCHOLARSHIP IN BIOLOGY

The late Mrs. Maud Gardiner Odell, B.S., 1894, through her daughter, Dorothy Gardiner, A.B., 1917, left to the University \$1,000 for the Biology Department. The sum is invested in Liberty Bonds and the annual income used for a Summer scholarship. The student accepting this scholarship must pursue work in botany or zoology during the Summer, and it should be, preferably, work of a nature that can be best done in the Summer months. Applications are to be made to the Professor of Biology before April 1 of any year.

PRIZES

THE BENNETT PRIZE

The Bennett prize is awarded annually at Commencement for the best essay on *The Principles of Free Government*. Any student in the University may compete. The prize awarded is the income of the sum of \$400 presented to the Regents of the University by Hon. William J. Bryan, Trustee for Philo Sherman Bennett.

LOAN FUNDS

WOMEN'S LEAGUE LOAN FUND

This fund consists of the principal sum of about \$1,500. Loans are made to women students by the officers of the Women's League.

THE WILLIAM PORTER HERRICK MEMORIAL FUND

This fund, the gift of Mrs. Ursula D. Herrick in memory of her husband, the late William Porter Herrick, consists of the principal sum of \$5,000. The proceeds of this fund are awarded by the Regents of the University "in aid of such worthy and promising undergraduate students of the University, of either sex, as the President of said University may from time to time designate; provided, however, that no student who uses tobacco in any form, or who uses intoxicating liquors of any kind as a beverage shall participate in the benefits of this fund".

THE PHIPPS LOAN FUND

The Phipps Loan Fund of \$5,000 was established in 1918 by Mr. L. C. Phipps and Mr. L. C. Phipps, Jr. Several loans are available from it each year for the benefit of promising students of the second, third or fourth years of the School of Medicine who are in need of such assistance to enable them to continue their medical education.

UNIVERSITY OF COLORADO LOAN FUND

Through the generosity of Mr. and Mrs. John A. McKenna, the University has been provided with \$1,000 to be loaned to needy students. The awards are made upon recommendation by the President.

UNIVERSITY HOSPITAL

The University Hospital provides hospital advantages for students of the University. A reduction of approximately twenty-five per cent. is made in all hospital rates for students. For further information concerning the University Hospital, see page 245.

SUPERVISION OF WOMEN STUDENTS

DEAN OF WOMEN

The Dean of Women directs the interests of women students. She regulates social activities for both men and women and is a member of the faculty committee which has direction over all student organizations and extra-curricular activities. The houses in which women room and board are under her supervision.

HOMES FOR WOMEN

Since there is no residence hall for women under the management of the University, suitable homes are provided in private families and in rooming houses. No woman student is allowed to live in any rooming house which is not on the University list accredited by the Dean of Women.

HEALTH OF WOMEN

The health of women students is under the supervision of the Dean of Women and the Medical Adviser to Women in co-operation with the Department of Physical Education for Women. The Medical Adviser is a woman physician. A thorough medical and physical examination is given to every woman student who enters the University, in order to determine her physical fitness. The Medical Adviser to Women holds office hours during the week when students may

obtain medical advice without charge. In case of illness, whether severe or slight, the student should notify the head of the house, who will report the case to the Department of Physical Education.

A series of lectures on personal and social hygiene is required of all freshman women and is open to all other women students. In the University Hospital provision is made for the care of the students of the University.

WOMEN'S BUILDING

The Women's Building furnishes headquarters for the women of the University. Here are the offices of the Dean of Women, the Women's League, and the Young Women's Christian Association. There is a hall for meetings and entertainments.

WOMEN'S LEAGUE

The Women's League is an association composed of the undergraduate women of the University, of *alumnæ*, and of the wives of members of the faculties. Its purpose is two-fold: first, to promote the intellectual and social welfare of the women of the University; and second, to establish a loan fund for the benefit of women students.

VOCATIONAL GUIDANCE

Instruction concerning vocations open to women and concerning University courses leading to such vocations is given during the college year. This instruction is given through lectures by experts and through personal interviews conducted by the Secretary of the Collegiate Bureau of Occupations, which has been established by the Denver Chapter of the Association of Collegiate *Alumnæ*.

STUDENT ASSEMBLY

The period from 11:00 to 12:00 on Tuesday is set apart for assembly of students. During this period no class or lecture work is conducted. A brief address is given by a member of the faculty or by some speaker invited for the occasion. Attendance is required.

UNIVERSITY PUBLICATIONS

1. Catalogue, containing general information about the University and its separate departments.
2. Summer Quarter Announcement.
3. The special announcements of the departments of Medicine, Law, Engineering, and Pharmacy.

4. The biennial report of the Regents of the University, recording the progress of the Institution during the previous biennial period, and showing the University budget of receipts and expenditures for the same period.

5. The University of Colorado Studies, published at irregular intervals, and containing original contributions by members of the University faculties.

6. University Extension Bulletins on various subjects of investigation.

7. The Booklet of Views, containing half-tone cuts of the buildings and grounds.

These publications may be obtained by application to the Registrar of the University.

STUDENT AND ALUMNI PUBLICATIONS

The Silver and Gold, a semi-weekly paper, named after the University colors, is published by the students.

The Coloradoan, an annual, is published annually by the Associated Students.

The Colorado Engineer's Magazine is published quarterly by the students of the College of Engineering.

The Colorado Alumnus, issued monthly, is the official publication of the Associated Alumni.

The Journal of Engineering, a quarterly, is published by the alumni and the students of the College of Engineering.

UNIVERSITY SCIENTIFIC SOCIETY

The University Scientific Society affords a common meeting ground for all those interested in scientific subjects. Regular meetings, open to the public, are held every Monday evening at eight o'clock. The papers read before these meetings are intended to set before the members some of the results of modern investigation in literature, art, history, and science.

ASSOCIATED STUDENTS

The student body is organized into an association known as "The Associated Students of the University of Colorado". Through this Association the students act collectively in all their University relations. There are eight executive boards—the Commission, the

Men's Athletic Board, the Women's Athletic Board, the Debating Board, the Board of Publications, the Financial Board, the Dramatic Board, and the General Board. The membership of these boards consists of faculty representatives appointed by the President of the University and student members elected by the students. The Commission controls general interests. The General Board has charge of all insignia, interprets the Constitution and proposes and ratifies amendments thereto, and employs and controls the general manager who has direct control of, and responsibility for, every student enterprise of general interest. The other boards cooperate with the general manager and determine the policy that shall be followed by him in the respective activities indicated by their names. By the payment of a \$6.00 fee any student, alumnus, or member of the faculties is entitled to admission to all local contests, games, or other events under the Association's auspices. Provision is made in the Constitution for a careful supervision of student funds, for the recall of any officers, and for the initiative and referendum.

ORATORICAL AND DEBATING INTERESTS

All public debates and oratorical contests are held under the management of the Debating Board of the Associated Students. This board consists of three faculty and three student members.

Annual debates are held with four other state universities. The teams for these debates are chosen by contest. The teams and alternates constitute a squad of twenty men, who are under the direct supervision of the instructor in debating.

The A. S. U. C. conducts each year a contest in oratory in which cash prizes are offered.

ATHLETICS

The University aims, primarily, to prescribe under competent supervision, the essential physical training for corrective and developmental purposes, and to stimulate interest in the greatest possible variety of athletics for both men and women, with suitably graded exercises for all students; and, secondarily, to develop highly specialized intercollegiate sports for men. Walking and mountain climbing are popular forms of recreation, and the climate is such as to permit out-of-door exercise during most of the year.

Athletics are placed upon a stable financial foundation under the organization of the Associated Students of the University. General

supervision and direction of athletics for men is vested in the Athletic Board, and for women in the Women's Athletic Board. These Boards are each composed of three members of the faculty, appointed by the President of the University, and three student members, who are officials of the Associated Students. The Boards are responsible in all things to the University Senate. All students who participate in athletics are required to take a medical and physical examination.

ATHLETICS FOR MEN

The following branches of organized athletics are offered for men: football, baseball, basketball, soccer football, tennis, boxing, wrestling, rifle shooting, cross-country running, track and field sports, with intercollegiate, interclass, and interfraternity competition.

The University has a chapter of the national athletic society, Sigma Delta Psi, membership in which is open to men who successfully complete fourteen athletic requirements.

ATHLETICS FOR WOMEN

The following branches of organized athletics are offered for women: archery, basketball, baseball, golf, indoor baseball, tennis, volley ball and track. Color tournaments in basketball, baseball and volley ball, in which everyone enrolled in the sports participates, are played; after which class squads and finally class teams are chosen. Interclass tournaments are then played. Annual tournaments are held in tennis, track and archery. A field day of women's athletics is held biennially.

WOMEN'S ATHLETIC ASSOCIATION

Every regularly registered woman student of the University is an associate member of the Women's Athletic Association. The object of the Association is to encourage and control intra-mural athletics for women, thereby furthering health, democracy and sportsmanship in the student body. The Association cooperates with the Department of Physical Education in the conduct of women's activities. Athletic points for University letters are given for all elective sports, athletic honors, position on class squads, teams, etc. The Association also cooperates with the University Hiking Club whereby points may be obtained for hiking.

MUSICAL ORGANIZATIONS

The University Glee and Mandolin Clubs are open to men of the University. Members are selected by competitive examination.

The Women's Glee Club is open to women students. Concerts will be given each year. The club is limited to forty members. Members are selected by competitive examination.

The University Choral Union was established in 1919. The purpose of the organization is the study of the great oratorios, choruses, and cantatas under the direction of the Professor of Music, and the public presentation of them in semi-annual concerts. Through a committee of faculty members the Choral Union will bring to the University each year artists and musical organizations of the higher type.

The University Orchestra is open to students and members of the faculty desiring to study standard orchestral works.

The University Band furnishes music for the various general University functions.

The Women's Instrumental Club is open to women of the University.

All musical organizations are under the direction or general supervision of the Professor of Music.

RELIGIOUS ORGANIZATIONS

Y. M. C. A. AND Y. W. C. A.

The Young Men's Christian Association and the Young Women's Christian Association have organizations in the University, which are open to members of the faculties and to students of all departments.

Religious services and meetings for the presentation of the moral and religious problems of the day are held by each Association. Classes for the study of the Bible and world-wide missions are conducted by each under competent leadership. Vesper services are held in the Chapel. In providing frequent social gatherings the Associations render important service.

Resident secretaries are employed by the Associations, and their services are at the disposal of prospective students and their friends. The Associations annually publish a Student and Faculty Directory.

The Y. W. C. A. conducts a board and room register, a book exchange, and a self-help bureau for the women at the opening of each school year. The Y. W. C. A. offices are in the Women's Building and are open at all times to the women of the University.

The Y. M. C. A. has taken over the property and most of the social activities of the Colorado Union, and now occupies the cottage on the campus formerly occupied by the Union, thus assuming a much larger part in the life of the University than ever before. Permanent employment bureau, information bureau, and headquarters for men are maintained in the cottage. Reading, writing and amusement rooms are open at all times.

Student pastors are maintained on the Campus by several Churches for the benefit of the entire student body, as well as for the benefit of the students of their own denominations, working in harmony with the Y. M. C. A. and Y. W. C. A.

NEWMAN SOCIETY

The Newman Society is the local branch of the Catholic Students' Association of America. Membership is open to all Roman Catholic students. Its purposes are both religious and social.

HONOR SOCIETIES

Four honor societies, to which students of high scholastic standing are eligible, have chapters at the University of Colorado. Phi Beta Kappa elects to membership senior students in the College of Liberal Arts. Sigma Xi offers membership to graduate and undergraduate students who have shown special ability in scientific investigations. Tau Beta Pi is a technical society, selecting members from students in the College of Engineering. Kappa Delta Pi elects to membership students in the College of Education.

STUDENT LITERARY SOCIETIES AND CLUBS

Literary societies and debating clubs are organized and conducted each year by the students.

The Scribblers' Club aims to develop talent in original literary work. Meetings are held every two weeks, the programs consisting entirely of poems, essays, sketches, or stories written by the members. Membership is open to both men and women.

Le Cercle Français is an informal club which meets every two

weeks for the purpose of obtaining practice in the French language, which is used exclusively. Plays are read and performed, various games are played, and the work of the classroom is supplemented in every possible way.

El Circulo Español, like Le Cercle Français, meets every other week. The object of the club is the same, to acquire practice in the spoken language and to stimulate interest in things Spanish. The meetings of the two clubs do not conflict.

The University of Colorado Menorah Society is a member of the Intercollegiate Menorah Association. Its object is the study and advancement of Jewish culture and ideals. Membership is open to any student of the University interested in these subjects.

The Players' Club is organized for the purpose of promoting dramatic study and gives one or more public presentations during the year.

The Civil Engineers' Society, the Electrical Engineers' Society (a student branch of the American Institute of Electrical Engineers), and the University of Colorado branch of the American Society of Mechanical Engineers have been organized by the students in the College of Engineering. These societies meet every two weeks. In each original papers on questions of technical interest are presented and discussed. These three societies joined as "The Associated Engineering Societies" publish the Journal of Engineering. The Colorado Engineers' Magazine is published by the students of the College of Engineering.

ASSOCIATED ALUMNI

The Associated Alumni of the University of Colorado is composed of all the graduates of the University of Colorado and of all other persons who have been in residence at the University of Colorado for at least one year, as members of the faculty, officers or students. The organization aims to promote the best interests of the University of Colorado and to unite the alumni for mutual advantage. In furtherance of these objects it maintains a permanent secretary in Boulder and publishes a monthly magazine known as "The Colorado Alumnus". The legislative and executive powers are vested in the Alumni Senate, which is made up of senators elected from the alumni at large, and representatives of the nineteen local alumni organizations in the principal towns and cities of Colorado

and in many cities in other states. The Alumni Senate meets in Boulder in October on the Annual Home-Coming Day, and in June at Commencement.

TEACHERS APPOINTMENTS OFFICE

The Teachers Appointments Office makes every effort to place students and graduates of the University in the positions for which their general education and professional preparation have fitted them. The office, which is conducted by a secretary under the general supervision of a Senate Committee on Recommendation of Teachers, maintains communication with superintendents and boards of education with reference to vacancies, and invites correspondence from school authorities who are in need of professionally trained teachers. Students of the University who intend to teach, and graduates of the University who are now engaged in teaching and who wish to secure better positions, should register with the secretary of the office.

COLLEGE OF LIBERAL ARTS

FACULTY

GEORGE NORLIN, Ph.D., President of the University.

FRED B. R. HELLEMS, Ph.D., LL.D., Dean; Professor of Latin.

J. RAYMOND BRACKETT, Ph.D., Professor of Comparative Literature,
Emeritus.

IRA M. DELONG, A.M., LL.D., Professor of Mathematics.

CHARLES C. AYER, Ph.D., Professor of Romance Languages.

FRANCIS RAMALEY, Ph.D., Professor of Biology.

MELANCHTHON F. LIBBY, Ph.D., Professor of Philosophy.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

*RUSSELL D. GEORGE, A.M., Professor of Geology.

THEODORE D. A. COCKERELL, Sc.D., Professor of Zoology.

†GEORGE M. CHADWICK, Professor of Music.

JAMES F. WILLARD, Ph.D., Professor of History.

OLIVER C. LESTER, Ph.D., Dean of the Graduate School; Professor of
Physics.

FRANK E. THOMPSON, A.B., Director of the College of Education;
Professor of Education.

JUNIUS HENDERSON, A.B., Curator of Museum; Professor of Natural
History.

JOHN S. McLUCAS, A.M., Professor of English.

GRACE VAN SWERINGEN BAUR, Ph.D., Professor of Germanic Lan-
guages.

MILO G. DERHAM, Ph.D., Director of the Summer Quarter; Professor
of Greek.

LAWRENCE W. COLE, Ph.D., Director of the College of Home Econom-
ics and Social Service; Professor of Psychology.

LORAN D. OSBORN, Ph.D., Director of the Extension Division; Pro-
fessor of Sociology.

FREDERICK A. BUSHEE, Ph.D., Director of the College of Commerce;
Professor of Economics and Sociology.

RALPH D. CRAWFORD, Ph.D., Professor of Mineralogy and Petrology.

* On leave of absence, autumn quarter, 1919-1920.

† Resigned January 14, 1920.

*HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.

*FRANK L. CLAPP, Ph.D., Professor of School Administration; High School Visitor.

ARNOLD J. LIEN, Ph.D., Professor of Political Science.

JAY W. WOODROW, Ph.D., Professor of Physics.

GEORGE F. REYNOLDS, Ph.D., Professor of English Literature.

FRANK WILBUR CHACE, Mus.Doc., Acting Professor of Music.

C. HENRY SMITH, Ph.B., Librarian; Associate Professor of Bibliography.

CARL C. ECKHARDT, Ph.D., Associate Professor of History.

PHILIP G. WORCESTER, A.M., Associate Professor of Geology.

GEORGE H. LIGHT, Ph.D., Associate Professor of Mathematics.

THOMAS MAITLAND MARSHALL, Ph.D., Associate Professor of History.

OSCAR A. RANDOLPH, Ph.D., Associate Professor of Physics.

FRANK E. E. GERMANN, Dr. ès Sc., Associate Professor of Chemistry.

S. ANTOINETTE BIGELOW, A.M., Dean of Women; Assistant Professor of English Literature.

†MAX M. ELLIS, Ph.D., Sc.D., Assistant Professor of Biology.

WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.

PAUL M. DEAN, Ph.D., Assistant Professor of Chemistry.

FRANCIS WOLLE, A.M., Assistant Professor of English Literature.

IRENE P. MCKEEHAN, A.M., Assistant Professor of English.

ELIZA G. WILKINS, Ph.D., Assistant Professor of Classics.

EDWIN B. PLACE, Ph.D., Assistant Professor of Romance Languages.

*JAMES N. ASHMORE, Director of Physical Education.

‡HELEN MASTERS BUNTING, Director of Physical Education for Women.

JOE MILLS, Director of Physical Education for Men.

CLARE H. SMALL, A.B., Director of Physical Education for Women.

ELSIE S. PRATT, M.D., Medical Adviser to Women.

CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.

LORENA UNDERHILL, A.M., Instructor in Philosophy.

CLARIBEL KENDALL, A.M., Instructor in Mathematics.

ERSKINE R. MYER, A.B., Instructor in English.

* Resigned October 10, 1919.

† Resigned June 23, 1919.

‡ Resigned May 24, 1919.

MAUD E. CRAIG, A.M., Instructor in Latin.

GLADYS C. CURTIS, A.M., Instructor in Education.

OLIN INGRAHAM, A.M., Instructor in Economics.

JOHN W. RENNELL, Instructor in Art.

BESSIE R. GREEN, A.M., Instructor in Biology.

SUSAN BLAKEY, A.B., B.S., Instructor in Home Economics.

HORACE B. VANVALKENBURGH, M.S., Instructor in Chemistry.

BENJAMIN D. CORNELL, A.M., Instructor in Chemistry.

EVA M. BAUM, A.B., Instructor in Chemistry.

CLARA HISCOCK BRACE, A.B., Instructor in Education.

HENRY M. SAYRE, Instructor in Accounting.

MAY SNYDER, A.M., Instructor in Romance Languages.

FLORENCE M. FARRINGTON, A.M., Instructor in Romance Languages.

WILLIAM WARREN HOWE, A.B., Instructor in Chemistry.

CLEOPHILE B. DEAN, Ph.D., Instructor in Romance Languages.

EMMETT B. CARMICHAEL, A.B., Instructor in Chemistry.

LEE T. CASEY, Instructor in Journalism.

EDNA L. JOHNSON, A.B., Instructor in Biology.

BENJAMIN FORD KITCHEN, A.B., Instructor in English.

EDNA DAVIS ROMIG, A.B., Instructor in English.

MARGARET SCHULTZ, A.B., Instructor in Physical Education for
Women.

REBECCA W. VAILLE, A.B., Instructor in English.

LEONA VINCENT, A.B., Instructor in Psychology.

ARTHUR H. WARNER, A.B., Instructor in Physics.

*NORMA E. LEVEQUE, A.B., Instructor in Biology.

†HERBERT C. HANSEN, A.M., Instructor in Biology.

MARJORIE FLEMING, A.B., Assistant in Romance Languages.

KENNETH MACK WILLSON, A.B., Assistant in Geology.

MELVIN C. COLLINS, A.B., Assistant in Geology.

*WILLIAM R. LEWIS, A.M., Assistant in History and in English.

MARY STELLA HALL, A.B., Assistant in Education.

ANNIE LAURIE WILLETT, A.B., Assistant in Psychology.

HOWARD C. BERESFORD, A.B., Assistant in Physical Education.

RAMA VIRGINIA BENNETT, B.S., Assistant in Home Economics.

* Resigned December 19, 1919.

† Appointed January 14, 1920.

EQUIPMENT

LABORATORIES

THE PHYSICAL LABORATORY—The Department of Physics occupies the entire first floor, two hundred feet by sixty feet, of the Hale Science Building, with a large modern lecture room on the second floor. The laboratories are large and well supplied with gas, water, direct and alternating current, and the ordinary apparatus for students' use. There are rooms for advanced and research work equipped with special apparatus particularly in light and electricity. A well equipped shop and a department library also add greatly to the efficiency of the department.

CHEMICAL LABORATORY—The basement of the Chemistry Building contains a laboratory for organic and physiological chemistry, a laboratory for food analysis, a laboratory for sanitary water analysis, and the main stock and acid room. On the first floor are the laboratories for general inorganic chemistry and for qualitative analysis, a private laboratory, a laboratory for quantitative analysis, a balance room, a combustion room, and the stock distributing room. The second floor contains the main lecture room seating two hundred and fifty students, the lecture desk being supplied with water, gas, suction pumps, draught, and electric current; on this floor also are a room for the storage of lecture apparatus, a small lecture room seating eighty students, the chemical library, the professor's study and private laboratory, a laboratory for technical and gas analysis, and a laboratory for physical chemistry. Each desk in the various laboratories is equipped with gas, water, and sink, and, in the organic laboratory, with suction pumps. The ventilation is accomplished by the direct-indirect system, assisted by hoods and three horsepower electric motors and rotary fans. The laboratories for physical and advanced analytical chemistry are equipped with the proper apparatus for thorough experimental work in these subjects. The chemical library, to which students in the laboratories have access at any time, besides reference books on chemical subjects, contains bound files of the chief chemical journals of the world.

BIOLOGICAL LABORATORIES—The Biological Laboratories, located in the Hale Science Building, provide accommodations for work in general biology, zoology, and botany. The equipment is adequate for large undergraduate classes and for a limited number of advanced students. Students have ready access to the museum, herbarium, and department library. A greenhouse for experimental work has recently been erected. The summer mountain laboratory, maintained at Tolland, Colorado (altitude 8,889 feet), is chiefly for work in plant and animal ecology.

GEOLOGICAL, MINERALOGICAL AND GEOGRAPHICAL LABORATORIES—A new fire-proof building now houses the departments of Geology, Mineralogy, and Geography.

In order to meet the increasing demand for instruction in geography and physiography, the department has been equipped with the most approved geographical and meteorological apparatus, including most of the instruments used in the U. S. Weather Bureau.

The Department of Geology has good working collections of mineral and rock specimens.

The laboratories are equipped with apparatus for chemical and optical mineralogy and petrology. The equipment for geologic surveying and mapping is practically complete.

The library of the department consists of about 3,000 volumes. It receives all United States and State Geological Survey reports and several important journals and magazines, and contains the recent text and reference books on geology, mineralogy, petrology, geography, and meteorology.

THE PSYCHOLOGICAL LABORATORY—The Psychological Laboratory occupies four rooms on the third floor of the Liberal Arts Building. It is well equipped for instruction and training in physiological and experimental psychology. The equipment includes the apparatus necessary for general training courses in psychology and psychological methods, chronographs and recording appliances of various kinds, microscopic and lantern slides of brain sections, models, charts, a complete set of anthropometric instruments, etc. Instruments are provided for typical experiments in psychophysics, sensation, perception, association, reaction and movement. Constant additions are being made to the equipment.

MUSEUM AND CABINETS

THE ZOOLOGICAL COLLECTIONS include vertebrate skeletons and skulls, mounted mammals and study skins, mounted birds and study skins, eggs and nests, fishes, reptiles, amphibians, crustaceans, insects, echinoderms, corals, sponges, and mollusks. Special importance attaches to the large collection of land, fresh-water, and marine shells, particularly rich in Rocky Mountain and Pacific Coast material; to fresh-water fishes from various parts of the world, including a large series from Colorado; to a good series of western reptiles and amphibians; and to a collection of Colorado butterflies.

THE BOTANICAL COLLECTION consists of a large series of mounted specimens, including seed plants, lichens, fungi and algæ, a display case of tropical seeds and fruits, a representative series of tropical woods and a collection of economic woods of the United States.

THE GUGGENHEIM BIOLOGICAL COLLECTION, purchased with funds placed at the disposal of the Board of Regents by Simon Guggenheim, consists of a fine series of the nests and eggs of birds taken by Mr. Dennis Gale at various altitudes in Colorado, with the accompanying field notes; also of a valuable collection of mounted birds and mammals, chiefly from Colorado and adjacent states.

THE MINERALOGICAL AND GEOLOGICAL COLLECTION consists of a large series of typical rocks, minerals, Colorado ores, microscopic sections of rocks, ores and minerals, wooden models of crystals, etc. They include both display and study specimens.

THE GUGGENHEIM MINERAL COLLECTION, the gift of Simon Guggenheim, consists of over 1,000 carefully selected type mineral specimens, which will be kept together for reference. It includes a large number of rare minerals not common in university cabinets, and is an extremely valuable addition to the equipment of the Department of Geology.

THE ETHNOLOGICAL COLLECTIONS consist chiefly of material illustrating the ancient culture of the southwestern United States, particularly the pottery, with many stone implements from Ohio and elsewhere, and ethnological material from China, Japan, and the Philippines. These collections are increasing very rapidly. At present there are twelve cases of display material, besides many large objects not in cabinets.

THE PHOTOGRAPH AND LANTERN SLIDE CABINETS of the Biology and Geology departments and Museum contain several thousand negatives, prints and lantern slides illustrating various biological and geological phenomena.

THE COIN, CURRENCY, AND POSTAGE STAMPS COLLECTIONS include several thousand specimens, American and foreign, mostly mounted.

THE WAR COLLECTION, just begun, is growing rapidly, and already fills one large cabinet and part of another.

THE PALEONTOLOGICAL COLLECTIONS include great quantities of Colorado marine invertebrates, very large numbers of Tertiary insects and plants from the Lake Beds of Florissant, Colorado, Cretaceous plants from various parts of the State and from Kansas, Paleozoic plants from the coal measures of the eastern states, many thousands of Tertiary and Pleistocene marine invertebrates from the Atlantic and Pacific coasts, a representative collection of Paleozoic invertebrates from the eastern states and Mississippi Valley, many invertebrate fossils from Europe, Panama, and Mexico, and a few important fossil vertebrates, mostly from Colorado.

THE MUSEUM is temporarily located in the Hale Science Building, and contains the paleontological, biological, and ethnological cabinets and part of the mineralogical collections. A large portion of the material hereinbefore described is considered a part of the Museum, though some of the most valuable study collections belong to the Biology and Geology departments, and all of the material in the Museum is intended for the use of the various teaching departments, of the general public, and of specialists working upon lines represented in the collections. More than forty display cases contain suitable material on exhibition, the balance being in drawer cabinets, where it may be examined by students and others interested. Large quantities of duplicates are being collected for class use, research, and exchange purposes. The Museum is at present the depository of the paleontological collections of the Colorado Geological Survey. Several loan collections are also in the cabinets.

ART COLLECTIONS

THE PHILLIPS ART COLLECTION is named from the donors, Mr. and Mrs. Ivers Phillips. It is contained in rooms on the second floor of the east wing of the Macky Auditorium. The masters of

painting are represented by Braun autotypes; the works in architecture and sculpture, by large photographic reproductions, casts and several hundred glass transparencies.

THE FARNSWORTH COLLECTION OF COINS was given to the University by Dr. Wilson A. Farnsworth, of Cæsarea, Cappadocia. It consists of some three hundred and fifty Greek, Roman, Byzantine, mediæval, and modern coins. The collection is on exhibition on the third floor of the Arts Building.

COURSES OF STUDY

INTRODUCTORY

In connection with the requirements for graduation the following general tendencies may be noted. An attempt has been made to map out an intelligent and reasonable group system which shall leave adequate freedom for individual needs and abilities, and, at the same time, prevent undesirable scattering of the student's energies. Provision is made for a combination of certain fundamental subjects and free electives with special work that shall be more scholarly and more finally valuable both for cultural attainments and scientific efficiency.

Moreover, the plan adapts itself readily to the needs of students who are looking forward to further work in professional and technical schools. Thus, within the College of Liberal Arts itself provision is made for a College of Commerce with various subdivisions and for a College of Education. By combining work in the College of Liberal Arts with work in the technical schools the student may attain the degree of A.B., and either the degree of B.S. in the College of Engineering, or the degree of LL.B., in the School of Law, in six years, or the degree of M.D. in the School of Medicine, in seven years. In summary, then, we have a group system so arranged that the first two years in the College of Liberal Arts provide alike a foundation for more advanced work along University lines and a sound preparation for courses in technical and professional schools. This latter phase of the plan is in accordance with the growing conviction that the college course must do its part in the genuine preparation of students for a vocation, as well as offer every opportunity for the acquiring of a liberal education in the most enlightened sense of the word.

For the purposes of the present group system the various subjects are arranged as follows:

- I. DIVISION OF LETTERS: 6 groups.
- II. DIVISION OF SCIENCE: 7 groups.
- III. DIVISION OF PHILOSOPHY: 3 groups.
- IV. DIVISION OF HISTORY AND ECONOMICS: 3 groups.

With the same general purpose in view, but carried out in logical detail, the three following colleges have been established:

V. DIVISION OF COMMERCE, organized as the College of Commerce: 4 groups as follows: 1. Banking; 2. Manufacturing; 3. Journalism; 4. Trade, Transportation, Consular Service.

VI. DIVISION OF EDUCATION, organized as the College of Education; a professional group, and groups corresponding to those of the College of Liberal Arts.

VII. DIVISION OF HOME ECONOMICS AND SOCIAL SERVICE, organized as the College of Home Economics and Social Service.

Here may also be noted the arrangement for obtaining two degrees in six and seven years by crediting courses in the professional schools as a substitute for the groups and electives of the last two years—an extension of the group system. See pages 57, 114.

VIII. ENGINEERING SUBJECTS: equivalent of two years.

IX. LAW SUBJECTS: equivalent of one year.

X. MEDICAL SUBJECTS: equivalent of one year.

REQUIREMENTS FOR ADMISSION

See page 27.

REQUIREMENTS FOR GRADUATION

To attain the degree of Bachelor of Arts students must complete one hundred and eighty-six hours, according to the schedule printed below:

Attention is called to the following points:

1. Students must take seventy-five hours in some scheduled group, including at least eighteen hours in the two minors with not less than six hours in either minor.

2. Students in the freshman and sophomore years shall take eighteen hours of two subjects of the three groups, Classics, Mathematics, and Science, not less than six hours to be taken in either of the two subjects chosen.

3. All students shall be given a special test in English during the sophomore year, to determine whether additional work in formal English shall be required for graduation.

4. In beginning language courses no credit is given for less than a full year's work.

NOTE—The various branches taught in the College of Liberal Arts are offered in courses of study. A *five-hour course*, as here used, means *five* exercises a week throughout a quarter; a course in which the class meets the instructor *once* a week is a *one-hour course*. Three *five-hour courses* successfully pursued for one quarter would entitle the student to *fifteen* hours' credit; for one year, to *forty-five* hours' credit and so on. Students regularly take fifteen or sixteen hours per week.

On a day appointed before the beginning of each quarter all students are required to record their election of studies for that quarter. Credit will be granted for such studies only as have been approved by the Committee on Courses. No student will be permitted to change his course, or drop any study, except by vote of the Committee on Courses.

SCHEDULE

FRESHMAN YEAR

1. ENGLISH LANGUAGE	9 hours*
2. †CLASSICS, MATHEMATICS OR SCIENCE.....	9 hours
3. HISTORY OR ECONOMICS	9 hours
4. FREE ELECTIVES	15-18 hours
PHYSICAL EDUCATION	3 hours
<hr/>	
45-48 hours	

SOPHOMORE YEAR

5. †CLASSICS, MATHEMATICS OR SCIENCE.....	9 hours
6. PSYCHOLOGY OR PHILOSOPHY.....	9 hours
7. GROUP ELECTIVES (Major or Minor).....	15 hours
8. FREE ELECTIVES	9-12 hours
PHYSICAL EDUCATION	3 hours
<hr/>	
45-48 hours	

* A written examination in English will be given to each student in the sophomore year, and those found deficient will be required to take additional courses in formal English.

† Students in the freshman and sophomore years shall take eighteen hours of two subjects of the three groups, Classics, Mathematics, and Science, not less than six hours to be taken in either of the two subjects chosen.

JUNIOR YEAR

10. GROUP ELECTIVES (Major or Minor).....	30-25 hours
11. FREE ELECTIVES	15-20 hours
	<hr/> 45 hours

SENIOR YEAR

12. GROUP ELECTIVES (Major or Minor).....	30-25 hours
13. FREE ELECTIVES	15-20 hours
	<hr/> 45 hours

GROUPS

I. DIVISION OF LETTERS

GROUP (a) <i>Major</i> , Latin;	<i>Minors</i> , { Greek or French, European History.
GROUP (b) <i>Major</i> , Greek;	<i>Minors</i> , { Latin, English Literature or Philosophy.
GROUP (c) <i>Major</i> , { Germanic Languages	<i>Minors</i> , { History, Latin or French.
GROUP (d) <i>Major</i> , { Romance Languages;	<i>Minors</i> , { Latin, German or History.
GROUP (e) <i>Major</i> , { Literature, Comparative and English.	<i>Minors</i> , { Two of the following: History, English Language, Classics.
GROUP (f) <i>Major</i> , { English Language;	<i>Minors</i> , { English Literature, English History.

II. DIVISION OF SCIENCES

GROUP (g) <i>Major</i> , Mathematics;	<i>Minors</i> , { Physics, Astronomy.
GROUP (h) <i>Major</i> , Chemistry;	<i>Minors</i> , { Physics, Mathematics.
GROUP (i) <i>Major</i> , Physics;	<i>Minors</i> , { Mathematics, Chemistry.
GROUP (j) <i>Major</i> , Botany;	<i>Minors</i> , { Zoology, Chemistry or Geology.

GROUP (k) <i>Major</i> , Zoology;	<i>Minors</i> , { Botany, Chemistry.
GROUP (l) <i>Major</i> , Geology;	<i>Minors</i> , { Chemistry, Mineralogy.
GROUP (m) <i>Major</i> , Mineralogy;	<i>Minors</i> , { Geology, Chemistry.

III. DIVISION OF PHILOSOPHY

GROUP (n) <i>Major</i> , Philosophy;	<i>Minors</i> , { Psychology, Biology.
GROUP (o) <i>Major</i> , Psychology;	<i>Minors</i> , { Philosophy, Biology.
GROUP (p) <i>Major</i> , Education;	<i>Minors</i> , { Psychology, Biology.

IV. DIVISION OF HISTORY AND ECONOMICS

GROUP (q) <i>Major</i> , History;	<i>Minor</i> , Economics.
GROUP (r) <i>Major</i> , Economics;	<i>Minors</i> , { History, Sociology.
GROUP (s) <i>Major</i> , Sociology;	<i>Minors</i> , { Biology, Psychology.

ORDER OF DESCRIPTION OF COURSES

The various courses offered in the College of Liberal Arts are described in the following order:

Art.	History.
Biology.	Home Economics.
Chemistry.	Library Science and Practice.
Classics.	Mathematics.
Economics, Sociology, and Political Science.	Music.
Education.	Philosophy, Logic, and Ethics.
English Language.	Physical Education.
English Literature.	Physics.
Geology, Mineralogy, and Geography.	Psychology.
Germanic Languages and Literatures.	Romance Languages— French, Spanish, Italian.
	Electives in the Professional Schools.

DESCRIPTION OF COURSES*

ART

1. **FREEHAND DRAWING.** Three quarters. 2 h. Open only to students who wish to proceed to advanced work in the Department.
An introductory course.

2. **COLOR AND DESIGN.** Three quarters. 3 h. Open on consultation.
Conventionalization of natural forms; applied design; the full use of color and all techniques will be developed.
Students in this course will be required to attend a series of lectures on color, historic and modern ornament, lettering, etc., of one hour a week throughout the year in addition to the other studies.

Prerequisite: Freehand Drawing.

3. **ADVANCED COLOR AND DESIGN.** Three quarters. 2 h. Open on consultation.
The use of natural forms and the human figure, leading to ornamental illustrating for publications, mural decoration, etc.
Students in this course will be required to attend a series of lectures on color, historic and modern ornament, lettering, etc., of one hour a week throughout the year in addition to the other studies.

Prerequisite: Freehand Drawing.

4. **THE HOUSE, ITS FURNISHINGS AND DECORATION.** Three quarters. 2 h.

Exercises in the handling of color; color drawings of furnishings and interiors; drawings of floor plans, elevations and details; study of the periods in architecture and in interiors and furnishings; study of modern interior decoration and furniture; the use of household paints and varnishes; dyeing and dye stuffs.

* Courses for graduates only are listed and described under Graduate School. See page 199.

Students in this course will be required to attend a series of lectures on color, historic and modern ornament, etc., of one hour a week throughout the year in addition to the other studies.

5. MODERN PAINTING. One quarter. 2 h.

A detailed discussion of the purposes of modern paintings and of modern schools and the paintings of the future.

The lecture on color is open to students in this course, but it is not required and no credit will be given.

6. GREEK ART. One quarter. 2 h.

An introductory course in Greek architecture and sculpture. The subject is treated from the historical side and the course leads up to a study of most of the acknowledged masterpieces in the field.

7. ROMAN AND MEDIAEVAL ART. One quarter. 2 h.

A continuation of Greek Art and a preparation for Renaissance Art.

8. RENAISSANCE ART. One quarter. 2 h.

The course deals primarily with the painting and sculpture of the great period, but some attention will be paid to the minor arts. The historical development will be kept constantly in view.

See, also, under other departments.

BIOLOGY

I. GENERAL BIOLOGY

1. PRINCIPLES OF BIOLOGY. Autumn and winter quarters. 2 h.

For those who wish to know something of current biological theories and discoveries, but do not necessarily expect to specialize in the Department. Open to freshmen only if they have had some biological work in high school.

Heredity, evolution, the elements of classification, distribution of organisms in time (paleontology) and space (biogeography), lives of eminent naturalists, etc. The first quarter is devoted mainly to general and theoretical considerations, the second to the groups of animals and special topics.

2. **SANITARY SCIENCE.** Autumn quarter. Division I, Tu. Th., 8:00; Division II, Tu. Th. 2:00. 2 h. Juniors or seniors electing this course will be required to do extra work.

Recitations and lectures.

Structure and life activities of bacteria, yeasts and protozoa, especially as related to disease production. Problems of infection and immunity; antitoxins, vaccines, etc. Control of disease in school, home, and city.

3. **HYGIENE.** Winter quarter. Division I, Tu. Th. 8:00; Division II, Tu. Th. 2:00. 2 h. Juniors and seniors electing this course will be required to do extra work.

The human body viewed as a mechanism; the effective operation of that mechanism; individual and family health.

4. **HISTORY OF BIOLOGY.** Autumn quarter. 2 h. Not open to freshmen.

The progress of zoology and botany from the earliest times to the present; history of biological investigation; development of established theories; biology and human progress.

Prerequisite: 9 hours of zoology or botany.

5. **GENETICS.** 3 h. Not open to freshmen.

Recent progress in the study of heredity in plants and animals; human heredity; eugenics.

Prerequisite: Principles of Biology or its equivalent.

6. **PLANKTONOLOGY.**

Biology and economic relations of the microscopic plants and animals found in ponds, streams, and potable waters.

7. **MICROBIOLOGY.** 4 h.

Structure and cultural features of molds, yeasts, bacteria and protozoa with relation to the household, to agriculture and to industries; fermentation; decay. Chiefly a laboratory course.

Prerequisites: Sanitary Science and Plant Morphology.

8. **PUBLIC HEALTH PROBLEMS.** Spring quarter. 2 h.

Prerequisite: Sanitary Science.

9. **TEACHERS' COURSE IN BIOLOGY.** 2 h. Open on consultation.

The planning and teaching of courses in botany, elementary agriculture and nature study in high schools and grades.

10. NUTRITIONAL PHYSIOLOGY. Spring quarter. Tu. Th. 8:00. 2 h.
Prerequisite: a college course in either hygiene or physiology.
11. GENERAL BIOLOGY. Three quarters.
Students desiring a "General Biology" course may elect Biology 1, Botany 1 and 2, Zoology 1.

For courses for graduates only, see page 200.

NOTE—The more fundamental courses are offered every year; others are given when there is sufficient demand.

II. BOTANY

1. COLLEGE BOTANY. Autumn quarter. M. W. F. Division I, 8:00-10:00; Division II, 1:00-3:00. 3 h.
A brief introduction to the structure and activities of plants.
This course is repeated in the summer quarter.
2. ECONOMIC BOTANY. Winter quarter. M. W. F. Division I, 8:00-10:00; Division II, 1:00-3:00. 3 h.
History and origin of cultivated plants. Botany of the world's food supply. Grains and other foods; microscopy of flours, meals, breads, starches, spices. Textiles. Raw materials of commerce.
3. SURVEY OF PLANT KINGDOM. Spring quarter. M. W. F. Division I, 8:00-10:00; Division II, 1:00-3:00. 3 h.
Survey of the plant kingdom from alga to seed plant.
Prerequisite: 3 hours of botany.
4. ADVANCED ECONOMIC BOTANY. Spring quarter. 3 h. Intended primarily for students of Pharmacy, but open to others who have had 6 hours of botany and 10 hours of chemistry.
5. PLANT TAXONOMY. Three quarters. M. W. F. 2:00-4:00, with additional quiz hour once a week. 3 h.
Classification of spermatophytes. Representative plant families in Colorado.
Prerequisite: 9 hours of botany.
6. PLANT PHYSIOLOGY. Autumn and winter quarters. 3 h.
Prerequisite: 9 hours of botany; also inorganic chemistry.

7. PLANT ECOLOGY. Spring quarter. 3 h.

Structure and behavior of plants in relation to factors of the environment, as climate, water, light, soil, etc. Plant associations, consociations, societies. Successions, especially as exhibited in Colorado. Quadrat studies. Use of field instruments.

Prerequisite: 9 hours of botany.

8. FOREST BOTANY. Autumn and winter quarters. 3 h.

Ecological and taxonomic study of trees. The forests of North America and other continents. Forest associations.

Prerequisite: College Botany.

9. ADVANCED INDUSTRIAL BOTANY. Spring quarter. 2 h. Not open to freshmen.

Lectures and reference work without laboratory.

Recent progress in production and culture of economic plants; new introductions of exotic species; work of government departments.

Prerequisite: Economic Botany.

10. LOCAL FLORA. Spring quarter. 3 h.

Prerequisite: Plant Morphology.

11. PLANT ANATOMY. Spring quarter. 3 h.

Tissues and tissue systems of spermatophytes. Vascular anatomy as related to phylogeny. Botanical microtechnique.

12. MYCOLOGY. 3 h.

For courses for graduates only, see page 200.

NOTE—The more fundamental courses are offered every year; others are given when there is sufficient demand.

III. ZOOLOGY

1. COLLEGE ZOOLOGY. Three quarters. M. W. F. Division I, 10:00-12:00; Division II, 2:00-4:00. 3 h.

An introduction to the entire field of zoology. Autumn quarter: Protozoa to Crustacea. Winter quarter: Insecta to Chordata. Spring quarter: variation, geographical distribution, elements of comparative morphology, histology, embryology, paleontology.

2. VERTEBRATE ANATOMY. Spring quarter. Tu. Th. 8:00-11:00, with additional quiz hour once a week. 3 h.

Designed primarily for pre-medical students but open to all who have completed 6 hours of College Zoology.

3. PHYSIOLOGY. Autumn and winter quarters. Tu. 10:00, and Th. 10:00-12:00. 2 h.

Recitations, demonstrations and laboratory work.

Prerequisites: Inorganic Chemistry, also College Zoology or College Botany.

4. ECONOMIC ZOOLOGY. Spring quarter. Tu. 10:00, and Th. 10:00-12:00. 2 h.

Animals and animal products useful to man; foods, textiles, leather, fats, drugs, etc. Insect-destroying birds. Origin and improvement of domestic animals.

5. COMPARATIVE MORPHOLOGY (VERTEBRATES.) Autumn quarter. M. W. F. 8:00-10:00. 3 h.

An advanced course for students who have completed at least 6 hours of zoology.

6. COMPARATIVE MORPHOLOGY (VERTEBRATES). Winter quarter. 3 h.
A continuation of the preceding.

7. ANIMAL ECOLOGY. Spring quarter. 3 h.

A study of animals as related to environment. Animal communities. Areal zoology.

8. CYTOLOGY. Autumn and winter quarters. M. W. F. Two hours. each day with additional quiz hour.

Prerequisite: 9 hours of zoology.

9. GENERAL ENTOMOLOGY. Three quarters. M. W. F. 3 h.

The elements of entomology including the classification and life histories of insects, with discussion of the biological principles, illustrated by insects.

Prerequisite: a course in zoology or biology.

10. ELEMENTS OF ZOOLOGY. 3 h.

A brief survey of the animal kingdom covering the more essential parts of the first two quarters of College Zoology.

11. ORNITHOLOGY. Summer quarter.

A general account of the birds of the world with special

reference to economic forms and Colorado species. Lectures, with supplementary museum and laboratory work and some field work.

12. **FIELD ZOOLOGY.** Summer quarter.

At the Mountain Laboratory, Tolland, Colorado.

For courses for graduate students, see page 201.

NOTE—The more fundamental courses are offered every year; others are given when there is sufficient demand.

CHEMISTRY

1. **GENERAL INORGANIC CHEMISTRY.*** Three quarters. M. W. F. 10:00. 3 h. Those electing Course 1 must also elect Course 2.

A course of lectures dealing with the laws and theories of chemistry, together with a study of the elements and their most important compounds.

2. **GENERAL INORGANIC CHEMISTRY.*** Three quarters. Tu. Th. 8:00 or 1:00. 2 h.

This is a laboratory course designed to accompany Course 1.

3. **ADVANCED INORGANIC CHEMISTRY.** Three quarters. Tu. Th. 10:00. 2 h. Open to seniors and graduates.

A systematic study of the elements based on the periodic classification.

4. **ELEMENTARY QUALITATIVE ANALYSIS.** Three quarters. Lectures, M. 11:00; Laboratory, Tu. Th. 9:00 or 1:00. 3 h.

A course in the separation and identification of the more common bases and acids. The lectures deal with the chemistry of the analytical reactions, special emphasis being given to the application of mass-action, ion-product, etc. The course must be continued through at least two quarters.

Prerequisite: Inorganic Chemistry.

5. **ADVANCED QUALITATIVE ANALYSIS.** Autumn and winter quarters. Lectures, M. 10:00; Laboratory, M. W. F. 9:00 or 1:00. 3 h.

* All students entering the Department of Chemistry and not presenting university credits in general inorganic chemistry must take courses 1 and 2.

The course consists of the study of the rare elements, their separation and identification.

Prerequisite: Course 4.

6. **QUANTITATIVE ANALYSIS.** Three quarters. Lectures, Th. 11:00; Laboratory, M. W. F. 9:00 or 1:00. 4 h.

Elementary gravimetric and volumetric analysis, chemical calculations, etc. This course must be continued through at least two quarters.

Prerequisite: Course 4, or may be taken with Course 4.

7. **ORE ANALYSIS.** Second quarter. Lectures, W. 9:00; Laboratory, M. W. F. 9:00 or 1:00. 4 h.

A course in the analysis of ores, slags, etc., by the technical methods in use in mills and smelters.

Prerequisite: Mineralogy and Fire-assaying.

8. **ANALYSIS OF IRON AND STEEL.** Spring quarter. 3 h.

A practical course in the laboratory methods in use in the leading steel works.

Prerequisite: Course 6.

9. **GAS ANALYSIS.** Spring quarter. 3 h.

A course in the methods for determining the constituents of gas mixtures, especially as applied to illuminating gas, mine and furnace gases.

Prerequisite: Course 6.

10. **ELEMENTARY ORGANIC ANALYSIS.** Winter and spring quarters. 3 h.

A course in the separation and identification of pure organic compounds and mixtures, including ultimate organic analysis by combustion, etc.

Prerequisite: courses 4 and 13.

11. **SANITARY WATER ANALYSIS.** Any quarter. 8:00 or 1:00. 3 h.

A course in the chemical and bacteriological examination of water with regard to its use for drinking purposes.

Prerequisite: Course 4.

12. **MINERAL WATER ANALYSIS.** Any quarter. 8:00 or 1:00. 3 h.

A course in the analytical methods used in the determination of the mineral and gaseous constituents of natural waters.

Prerequisite: Course 4.

13. ORGANIC CHEMISTRY. Three quarters. M. W. F. 9:00. 3 h.
Lectures.

A study of the methods of preparation and the properties of the more important organic compounds. Special stress is laid upon the theories underlying the subject and the proofs of the constitution of most of the substances studied.

14. LABORATORY PRACTICE IN ORGANIC PREPARATIONS. Winter and spring quarters. M. W. F. 1:00. 3 h.

A laboratory course in the preparation of typical aliphatic and aromatic compounds.

Prerequisite: Course 13, autumn quarter.

15. PHYSICAL CHEMISTRY. Three quarters. M. W. F. 11:00. 3 h.

A lecture course presenting the conceptions of the modern physico-chemical theories concerning the states of aggregation of matter, solutions, thermo-chemistry, equilibria, chemical kinetics, electro-chemistry, and actino-chemistry.

Prerequisite: to be preceded or accompanied by Differential and Integral Calculus.

16. PHYSICAL CHEMISTRY. Three quarters. M. F. 1:00. 2 h.

A laboratory course supplementing Course 15, consisting of the determinations of densities, molecular weights, thermo-chemical and optical constants, conductivity of solutions, electromotive force, transference numbers, viscosity, surface tension, electro-chemical equivalents, transition points, etc.

Prerequisite: either to accompany or follow Course 15.

17. ELECTRO-CHEMICAL ANALYSIS. Winter quarter. 1:00. 2 h.

Laboratory practice in the determination and separation of the common metals by electrolytic methods.

Prerequisite: Course 4.

18. FOOD ANALYSIS. Autumn and winter quarters. 8:00 or 1:00. 3 h.

Lectures and laboratory.

A detailed course giving practice in the official and standard methods for the analysis of foods and the detection of adulterants.

Prerequisite: courses 4 and 13.

19. DRUG ASSAYING: PHARMACOPOEIAL TESTING. Autumn and winter quarters. Any three periods. 8:00 or 1:00. 3 h.

A laboratory course giving practice in the official and standard methods for the identification, determination of purity, detection of adulterants, and assaying of official drugs.

Prerequisite: courses 5 and 12.

20. DRUG ASSAYING: ORGANIC ANALYSIS. Autumn and winter quarters. Three periods. 8:00 or 1:00. 3 h.

A laboratory course in the qualitative and quantitative analysis of pharmaceutical and commercial organic products, such as alcohol, ethers, esters, glycerine, soaps, formalin, organic acids, etc.

Prerequisite: courses 4 and 13.

21. DRUG ASSAYING: ALKALOIDAL ASSAYING. Spring quarter. Any two periods. 8:00 or 1:00. 2 h.

Lecture and laboratory course.

A course consisting of all the most important alkaloidal assays and the separation and detection of the alkaloids.

Prerequisite: courses 4 and 13.

22. ADVANCED FOOD ANALYSIS. Any quarter. Any three periods. 8:00 or 1:00. 3 h.

An advanced laboratory course in the official and standard methods of food analysis.

Prerequisite: Course 18.

23. HISTORY OF CHEMISTRY. Winter quarter. Th. 11:00. 1 h.

Prerequisite: courses 1, 2, 4, 5.

24. ELEMENTARY BIOCHEMISTRY (PHYSIOLOGICAL CHEMISTRY).*

Spring quarter. Lectures, M. W. F. 9:00; Laboratory, M. W. F. 10:00-12:00. 5 h.

This course is designed primarily for students taking the combined College and Hospital course for the B.S. degree or the course in Home Economics.

Prerequisite: Course 13.

25. BIOCHEMISTRY. (PHYSIOLOGICAL CHEMISTRY).* Autumn quarter. Daily (except Saturday). 8:00-12:00. 10 h. Open only to advanced students of chemistry.

Lectures, recitations, and laboratory exercises on the chemistry of carbohydrates, fats, and proteins; of salivary,

* Courses 24 and 25 are given in the Department of Biochemistry, School of Medicine.

gastric, pancreatic and intestinal digestion; of bile, putrefaction products, feces; of epithelial, connective, muscular and nervous tissues; of blood, milk and urine. Considerable time is devoted to practical qualitative and quantitative methods of analysis of urine, milk, stomach contents, and blood, and to practical work in metabolism.

Prerequisite: Course 13, and either 14 or 24.

26. INDUSTRIAL CHEMISTRY. Spring quarter. Time to be arranged. 4 h.

A lecture course on the principal chemical industries.

27. ADVANCED PHYSICAL CHEMISTRY. Three quarters. M. W. F. 9:00. 3 h. Primarily for graduate students.

Lewis' *A System of Physical Chemistry* is studied in detail, taking up the subject from the standpoint of the kinetic theory of gases. An abundance of mathematical and experimental data is considered.

CLASSICS

GREEK

1. ELEMENTARY COURSE. Three quarters. 8:00. 5 h.
First year book; *Anabasis*; Homer, *Iliad*.
2. HOMER, *ILIAD* AND *ODYSSEY*. Three quarters. 9:00. 3 h.
Prerequisite: equivalent of Course 1.
3. LYSIAS AND DEMOSTHENES. Three quarters. 9:00. 2 h.
Selected orations.
4. PLATO, *APOLOGY* AND *CRITO*. Autumn quarter. 1:00. 3 h.
5. TRAGEDY. Winter and spring quarters. 11:00. 3 h.
Selected plays.
6. GREEK HISTORIANS. Autumn quarter. 11:00. 3 h.
Selections from Herodotus and Thucydides.
7. PLATO. Winter quarter. 2:00. 3 h.
Interpretation of the *Republic* with lectures on Platonism.
8. COMEDY. Spring quarter. 9:00. 3 h.
Aristophanes, *Clouds* and *Frogs*.
9. LYRIC POETS. Winter quarter. 8:00. 3 h.
Early lyric poets with introduction to Pindar and Bacchylides.

10. PASTORAL POETRY. Spring quarter. 3:00. 2 h.
Theocritus, Bion, and Moschus.
11. PROSE COMPOSITION. Spring quarter. 3:00. 2 h.
12. GREEK POETRY IN ENGLISH. Three quarters. 3:00. 3 h.
13. CLASSICAL MYTHOLOGY. Autumn and winter quarters. 9:00. 2 h.
14. GREEK HISTORY. Autumn quarter. 8:00. 3 h.
Down to the Roman period.

LATIN

1. ELEMENTARY COURSE. Three quarters. 10:00. 5 h.
First year book; grammar; Cæsar's Gallic War.
2. CICERO AND VIRGIL. Three quarters. 1:00. 5 h. For students
who enter with two units of Latin, or have taken Course
1.
Selected orations of Cicero; Latin writing, drill in forms
and syntax. The Aeneid, Books I-VI; drill in reading the Latin
hexameter, case and verb constructions, and poetic usages.
3. CICERO, DE SENECTUTE; SELECTIONS FROM LIVY; TERENCE, PHOR-
MIO. Three quarters. 8:00. 3 h.
Latin grammar, prose composition.
4. OVID, SELECTIONS; HORACE, ODES AND EPODES. Three quarters.
8:00. 2 h.
5. LATIN PROSE. Autumn quarter. 8:00. 2 h.
6. TACITUS. Autumn quarter. 8:00. 2 h.
Tacitus, Agricola and Germania; the spread of Roman in-
fluence in the West; early civilization of Western Europe.
7. LATIN PROSE AND SIGHT TRANSLATION. Winter quarter. 9:00.
3 h.
8. LATIN LITERATURE. Three quarters. 2:00. 3 h.
The outlines of the literature with its historical setting.
The course is based on Latin selections.
9. ROMAN HISTORY. Autumn quarter. 10:00. 3 h.
Lectures and reports on sources.
Outlines of Roman history; the history of Rome from its
foundation to 476 A. D., based on Latin extracts.

10. ROMAN SATIRE. Spring quarter. 8:00. 3 h.
Horace, Juvenal, Persius; the origin and development of satire with a critical estimate of the historical value of the contents.
11. TACITUS AND PLINY. Winter quarter. 8:00. 2 h.
Tacitus, Histories, book I; Pliny, Letters, book X; introduction to the prose of the Silver Latinity; Rome and the provinces.
12. ROMAN COMEDY. Winter quarter. 1:00. 3 h.
Terence and Plautus, six plays; a comparative study of these authors, from the literary as well as the morphological side.
13. RHETORICAL TREATISES. Three quarters. 5 h.
Horace, *Ars Poetica*; Cicero, *De Oratore*, *Brutus*; Quintilian, book X; Tacitus, *Dialogus de Oratoribus*; principles of literary criticism; the debt of the above writers to Greek sources.
14. CATULLUS. Autumn quarter. 11:00. 2 h.
15. ROMAN PHILOSOPHY. Three quarters. 5 h.
Lucretius, *De Rerum Natura*; Cicero, *De Natura Deorum*, *De Finibus* and *Tusculanae*; Seneca, selections; the place of Roman philosophy in the history of philosophy; the part played by these writers individually.
16. ROMAN HISTORY. 63 B. C. to 37 A. D. Spring quarter. 3 h.
Sallust, *Catiline*; Cicero, *Letters* (Abbott's selections); Tacitus, *Annals*, books I-VI; Velleius Paterculus, book II.
17. TIBULLUS AND PROPERTIUS. Winter quarter. 2 h.
18. MARTIAL AND PLINY. 2 h.
Selected epigrams and letters; private life under the early Roman Empire.
19. LATIN LITERATURE IN ENGLISH. 3 h.
The course is based on standard translations and is intended for students not taking Latin.
20. LIVY. 2 h. For advanced students.
Book I as a basis for the consideration of the problems of early Roman history.

21. **SUETONIUS.** 2 h.
Selected lives; introduction to the history of the Empire.
22. **TEACHERS' TRAINING COURSE.** Winter quarter. 3 h. For advanced students.
Lectures, reviews of textbooks; practical work in teaching under supervision.
23. **ADVANCED LATIN PROSE.** 2 h.
Stylistic analysis of Latin authors; the writing of Latin prose; problems in syntax.
24. **GREEK AND ROMAN ARCHÆOLOGY.** 2 h.
An elementary course in architecture, sculpture, and painting.
25. **MINOR LATIN POETS.**
Selections from various poets writing later than 69 A. D.

For courses for graduates only, see page 202.

ECONOMICS, SOCIOLOGY, AND POLITICAL SCIENCE

I. ECONOMICS

1. **INDUSTRIAL HISTORY OF MODERN EUROPE.*** Autumn quarter.
M. W. F. 2:00. 3 h.
Recitations, lectures, reports.
Traces the industrial and social development of the principal nations of Europe from the French Revolution to the present time.
2. **ECONOMIC HISTORY OF THE UNITED STATES.*** Winter and spring quarters. M. W. F. 2:00. 3 h.
Recitations, readings, lectures.
Traces the growth of industry, agriculture, commerce, transportation, population, and labor from the simple, isolated, agricultural communities of the colonies, to the complex industrial and commercial society of today.
3. **ECONOMIC AND COMMERCIAL GEOGRAPHY.** Autumn quarter.
M. W. F. 11:00. 3 h.
A study of the influence of the geographic environment on the economic life and development of peoples.

* Juniors and seniors receive only partial credit.

4. HISTORY OF COMMERCE. Spring quarter. M. W. F. 3:00. 3h.

A study of the development of the world's commerce with special attention to modern commercial organization.

5. ECONOMIC PROBLEMS OF RECONSTRUCTION. Winter and spring quarters. M. W. F. 11:00. 3 h.

A study is made of the problems in finance, business and labor which the war has brought into prominence. The economic principles which apply are explained. Suggested reforms are discussed.

Courses 1 to 5 are introductory and are open to freshmen.

6. PRINCIPLES OF ECONOMICS. Autumn and winter quarters. M. W. F. 9:00. 3 h. Not open to freshmen.

The purpose of this course is to teach fundamental principles; to open the field of economics in the way most helpful to further and more detailed study of special problems, and to give those not intending to specialize in the subject an outline of the general principles of economics.

7. PRINCIPLES AND PROBLEMS OF ECONOMICS. Three quarters. M. W. F. 10:00. 3 h. Not open to freshmen.

The purpose of this course is similar to Course 3, but it involves a more extended discussion of fundamental principles and a study of a larger number of specific problems.

8. STATISTICS. Spring quarter. 1:00. 3 h.

This course deals with elementary principles together with their applications, special emphasis being given to vital statistics.

9. LABOR PROBLEMS. Autumn quarter. Tu. Th. 2:00. 2 h. Not open to freshmen.

Recitations, reports, lectures.

A study of labor organizations, employers' associations, their respective methods of bargaining, the relation of government to both.

10. SOCIAL LEGISLATION. Spring quarter. Tu. Th. 2:00. 2 h. Not open to freshmen.

Recitations, reports, lectures.

A study of legislation to remedy conditions of destitution and dependence.

11. MONEY AND BANKING. Three quarters. Tu. Th. 8:00. 2 h.

Lectures, readings, discussions.

The history and theory of money, credit, and banking; special attention given to present-day problems of money and banking in the United States.

Prerequisite: Course 6 or 7.

12. TRANSPORTATION. Winter quarter. M. W. F. 1:00. 3 h.

Recitations, reports, lectures.

A study of the development of rail and water transportation in the United States; special emphasis laid on the condition of railway transportation at the present time. Rates and rate-making, finance, traffic, operation, and legislation, are studied in turn.

Prerequisite: Course 6 or 7.

13. TAXATION. Autumn quarter. M. W. F. 1:00. 3 h.

Lectures, discussions, reports.

A general study of the theory of public finance and a more detailed study of the revenue systems in the United States.

Prerequisite: Course 6 or 7.

14. CORPORATIONS. Autumn quarter. M. W. F. 2:00. 3 h.

Lectures, discussions, reports.

A study of the nature and organization of corporations. A comparison of the corporate form with other forms of business enterprise. The methods of forming corporations; types of securities; methods of marketing stocks and bonds; financing an enterprise; distribution of earnings; reorganization; problems of regulation and control.

Prerequisite: Course 6 or 7.

15. LIFE INSURANCE. Winter and spring quarters. Tu. Th. 3:00.
2 h.

16. MODERN ACCOUNTING. Winter and spring quarters. M. W. F.
3:00. 3 h.

17. TRUSTS. Spring quarter. Tu. Th. 1:00. 3 h.

Lectures, discussions, reports.

A study of the economics of integration and combination. The trust movement—its causes, characteristics, and monopoly tendencies. Competition and regulation; the Federal Trade Commission; proposed solutions of the trust problem.

Prerequisite: Course 6 or 7.

18. BUSINESS ORGANIZATION AND SCIENTIFIC MANAGEMENT. Winter quarter. M. W. F. 2:00. 3 h.

A study of the forms, methods, and principles of business organization and management; production, administration, and sales; records and accounts; systems of wage payments; principles of efficiency and scientific management.

Prerequisite: Course 6 or 7.

19. MATHEMATICAL THEORY OF INVESTMENTS. Spring quarter. M. W. F. 10:00. 3 h.

See Department of Mathematics.

20. PRINCIPLES OF ADVERTISING AND SALESMANSHIP. Spring quarter. M. W. F. 2:00. 3 h.

See also Department of Psychology.

For courses for graduates only, see page 216.

II. SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY. Three quarters. Tu. Th. 10:00. 2 h. For juniors and seniors.

Lectures, readings, discussions.

In this course an attempt is made to formulate the fundamental laws of association, with special reference to their relation to social progress. Such topics as the influence of the physical environment, natural selection, warfare, division of labor, sex and sexual selection, heredity, imitation, social oppositions, art, science, and religion will be discussed with reference to their effects on social progress.

2. PROBLEMS IN SOCIOLOGY. Three quarters. Tu. Th. 9:00. 2 h. Lectures, assigned readings, discussions.

This course takes up the study of our various social institutions, placing special emphasis upon the family, its origin, function and problems. The course includes a study of immigration, race problems, poverty, crime, and kindred subjects.

3. SOCIALISM. Winter and spring quarters. Tu. Th. 9:00. 2 h.

Proposals for the reorganization of society on a socialistic basis will be studied historically and critically. Writings of the early French and English socialists will be reviewed, but

the major part of the course will be devoted to a study of the modern movement.

4. MODERN ENGLISH REFORMERS. Autumn and winter quarters. M. W. F. 1:00. 3 h.

The lives of English Reformers, with discussion on the principles and methods of reform. Wilberforce, Robert Owen, Cobden, Bright, J. S. Mill, Kingsley, Maurice, Florence Nightingale, Shaftsbury, Octavia Hill, Ruskin, Dickens, Huxley, William Morris, A. R. Wallace, etc.

5. ADVANCED THEORY OF SOCIOLOGY. Spring quarter. Tu. Th. 9:00. 2 h. For advanced students only.

A critical study of the theories of the leading sociologists beginning with Auguste Comte.

6. RURAL SOCIOLOGY. Autumn quarter. Tu. Th. 9:00. 2 h.

A study of the social problems of rural community life.

For courses for graduates only, see page 216.

III. POLITICAL SCIENCE

1. NATIONAL GOVERNMENT OF THE UNITED STATES. Autumn and winter quarters. M. W. F. 8:00. 3 h. Open to freshmen.

An elementary course in American Government, intended as a preparation for advanced work in political science, for teaching in secondary schools, and for good citizenship. Deals with the organization and work of the national government in all of its aspects.

2. STATE AND LOCAL GOVERNMENT. Spring quarter. M. W. F. 8:00. 3 h. Open to freshmen.

Deals with problems in state and local government, development of state institutions, new departures in legislation and administration, the initiative, the referendum, the recall, the budget, working of our courts, state police development, civil service and the short ballot movement; special emphasis on Colorado.

3. COMPARATIVE EUROPEAN GOVERNMENT. Autumn and winter quarters. M. W. F. 1:00. 3 h.

A study of the organization and workings of the governments of representative European states, especially Great Brit-

ain, France, Germany, and Switzerland; party systems and cabinet government in these countries.

Prerequisite: Course 1, Course 2, or equivalent.

4. **MUNICIPAL GOVERNMENT.** Spring quarter. M. W. F. 1:00. 3 h.

A study of city charters, methods of city organization and administration, relation of the city to the state, home rule movement, commission government, the city manager type, short ballot and other reforms, comparisons with European cities.

Prerequisite: Course 2, or equivalent.

5. **POLITICAL PARTIES AND PARTY PROBLEMS.** Autumn quarter.

Tu. Th. 1:00. 2 h.

This course deals with the functions, history, and organization of political parties, party machinery, and such current party problems as direct primaries, nomination by petition, non-partisan elections, preferential voting, corrupt practices acts, and methods of party finance.

Prerequisite: Course 1, Course 2, or equivalent.

6. **CONSULAR AND DIPLOMATIC SERVICE.** Autumn quarter. Tu. Th. 1:00. 2 h. Alternates with Course 5.

Outline of the growth of international relations, the mode of conducting foreign affairs, methods of making, interpreting and terminating treaties and compacts, organization, duties and immunities of consular and diplomatic agents, diplomatic relations with Latin America and the Far East.

Prerequisite: Course 1, or equivalent.

7. **INTERNATIONAL LAW AND RELATIONS.** Winter and spring quarters. Tu. Th. 1:00. 2 h. Alternates with Course 8.

A study of the nature, sources and sanction of international law; status of nations; rules of peace, neutrality and war; doctrine and rules of neutrality; international rights of persons and property in time of peace and war; the Hague Conferences; newer problems, tendencies, and proposals; international unions, associations and cooperation.

Prerequisite: courses 1 and 3 or equivalent.

8. **MUNICIPAL FUNCTIONS AND PROBLEMS.** Winter quarter. Tu. Th. 1:00. 2 h.

In this course will be considered some of the prominent

problems of the modern city. Attention will be given to such questions as municipal ownership and regulation of public utilities, franchises, accounting and budget making, markets, city planning, municipal lodging and housing, recreation facilities, dust prevention, unemployment, the garden city movement, the social evil, public health, and other problems.

Prerequisite: Course 4 or equivalent.

9. PRACTICAL CITIZENSHIP. Spring quarter. Th. 11:00. 1 h.

A study of the place of the citizen in a democracy; acquisition and loss of citizenship; privileges and duties of citizens.

10. GOVERNMENTS AND IDEALS OF THE STATES AT WAR. Spring quarter. Th. 11:00. 1 h.

A survey of the political theories and ideals underlying the governments of the states at war and a critical consideration of the various governments.

EDUCATION

For further suggestions regarding the functions or purposes of the courses in this department and the order in which they should be taken, see College of Education, page 120.

1. GENERAL PSYCHOLOGY. (PSYCHOLOGY 1.) Two sections. Autumn and winter quarters. M. W. F. 1:00, 2:00, with an additional hour to be arranged for recitations and conferences. 3 h.

2. EDUCATIONAL PSYCHOLOGY. (PSYCHOLOGY 6.) Spring quarter. M. W. F. 1:00. 3 h.

3. PRINCIPLES OF EDUCATION. Autumn and winter quarters. M. W. F. 8:00. 3 h.

An elementary discussion of the nature, scope, and aims of education; an examination of those facts, theories, and hypotheses of biology, physiology, anthropology, psychology, sociology, and economics which would seem to have significance for educational theory; a synthesis of what is found to be pertinent into a working creed for the educator.

Prerequisite: courses 1 and 2 or their equivalent.

4. PUBLIC EDUCATION; ITS ORGANIZATION AND MANAGEMENT. Spring quarter. M. W. F. 8:00. 3 h.

The relationships between public education and govern-

ment; school law; the internal organization of a school system; school hygiene; school discipline. The topics are treated in an elementary way.

5. PRINCIPLES AND PRACTICE OF TEACHING. Three quarters. Tu. Th. 8:00 and other hours to be arranged. 2-6 h.

The application of principles to practice; the method and methods of the teacher in the elementary and secondary schools; comparative study of general and special methods; improvements in methods; classroom problems and their solution; the learning process and its direction; how we think and learn to think; how to study; how to teach others to study; essentials in the learning and teaching of the elementary and secondary school subjects.

Practice teaching is done in the University Training School and in the Boulder High School. The student teaches under real school-room conditions except that classes are smaller, beginning teachers are helped more, and supervision emphasizes the learning rather than the teaching process.

Prerequisite: courses 1, 2, 3, and 4, or their equivalents, senior standing, and the instructor's permission.

6. THE PUBLIC SCHOOL PROGRAM OF STUDIES. Autumn quarter. M. W. F. 8:00. 3 h.

The general subject of educational purposes and values is studied as a guide in the interpretation and making of programs of studies. Different programs of studies are examined as illustrative of fundamental principles and the members of the class prepare outlines of work in subjects of their choice.

Prerequisite: courses 1, 2, and 3, or their equivalents.

7. HISTORY AND PHILOSOPHY OF EDUCATION. Three quarters. M. W. F. 10:00. 3 h. Open to all.

8. SECONDARY EDUCATION. Autumn and winter quarters. Tu. Th. 1:00. 2 h.

Designed to give a broad view of the purposes and methods of secondary education; includes a brief historical survey; a study of existing systems, their organization and administration; the secondary school curriculum; the social life of high-school pupils; and a critical study of proposed plans for reorganization of the secondary school.

9. PRINCIPLES OF PRE-SCHOOL EDUCATION. Spring quarter. M. W. F. 2:00. 3 h.

For those who wish a general yet fairly complete view of the problems of the guidance of children, particularly during the earlier years. The nature of mental soundness; biological and anthropological considerations of mental and moral hygiene; the relation of environment to instruction; the various adaptations required by the environments; the fundamental human occupations; the levels of attainment and satisfaction.

Prerequisite: courses 1, 2, and 3, or their equivalent.

10. ANTHROPOLOGY. Autumn quarter. M. W. F. 9:00. 3 h.

An introductory study of the natural history of man; a survey of his physical evolution; his agreements with and divergencies from allied animals; theories of time and place of origin; the conditions of his existence and development; his relation to the rest of nature.

11. ETHNOGRAPHY. Winter quarter. M. W. F. 9:00. 3 h.

The main divisions of mankind and their chief physical characteristics; a comparative study of the chief tribes and races in their respective habitats; conditions which bring about differentiation; the migrations of tribes and races; the composition of new stocks; racial prospects.

12. ETHNOLOGY. Spring quarter. M. W. F. 9:00. 3 h.

The beginnings and transmission of culture; chief divisions of primitive culture; the cultural conditions as differentiating peoples; the variety and range of human activities; the elementary thoughts of mankind—primary elements of culture and mental life; the origin, growth, and present condition of the social, religious, industrial, political, and scientific occupations and institutions of various peoples; the identity of "the human" in the variety of peoples; culture grades and their causes.

13. SOCIAL PSYCHOLOGY. Autumn quarter. Tu. Th. 9:00. 2 h.

A study of personality as socially modified or determined; the effects of imitation; habit; habit and attention; social and personal crises; language; instincts, emotions, sentimentalisms, sentiments, and ideas; occupations and institutions.

Prerequisite: courses 1 and 2, or their equivalent.

14. **EDUCATION AND SOCIETY.** Winter and spring quarters. Tu. Th. 9:00. 2 h.

A study of the interrelations of education and society; society's responsibilities to, and need of, the school; the school's duty to, and expectations of, society; educational institutions and forces other than the school; society an educational device.

Prerequisite: courses 1, 2, and 3, or their equivalent.

15. **SCHOOL SUPERVISION.** Spring quarter. M. W. F. 2:00. 3 h.

A study of those phases of school work that require coordination and the cooperation of the entire teaching corps. The course is planned for both teachers and supervisors. Among the topics to be studied are: the methods of supervision; the graded system and its modifications; the training, selection, promotion, and professional growth of teachers; school finance; records and reports.

Prerequisite: courses 1, 2, 3, and 4, or their equivalent.

16. **PRACTICUM IN EDUCATION.** Any one or more quarters. Hour to be arranged. Credit to be arranged.

The class will work on the seminar plan. The topic for 1919-1920 will be determined after the personnel of the class is known.

17. **SEMINAR IN EDUCATION.** Three quarters. W. 7:40 p. m. 2 to 6 h.

Subject-matter will vary from year to year; special examination and investigation of selected problems of importance in educational theory and practice; provision for independent investigations and for research in special problems.

Prerequisite: senior or graduate standing, and the instructor's permission.

ENGLISH LANGUAGE

1. **FRESHMAN ENGLISH.** Nineteen sections. Three quarters. M. W. F. 8:00, 9:00, 10:00, 11:00, 1:00, 2:00, 3:00. 3 h. Required of all freshmen.

Textbook, themes, oral exercises.

2. **ADVANCED COMPOSITION.** Four sections. Three quarters. Tu. Th. 9:00, 10:00, 2:00. 2 h.

Textbook, themes.

3. SHORT STORY. Tu. 7:30. 2 h.

A course in writing short stories under criticism of the instructor and the class, to which only a limited number of apt students are admitted.

4. FRESHMAN DEBATING. Tu. Th. 10:00. 2 h.

5. ARGUMENTATION AND DEBATE. Three quarters. M. W. F. 2:00. 3 h. Not open to freshmen.

At the end of the first quarter the University debating squad is selected. Those forming this squad will be given two additional credits. No student shall receive more than a total of fifteen credits in debating.

6. PUBLIC SPEAKING. Three quarters. Tu. Th. 3:00, and afternoons to be arranged. 2 h.

A study of oratorical style, analysis and writing of orations, practical exercises.

7. JOURNALISM. Three quarters. Tu. Th. 2:00. 2 h.

Lectures, reports, practical work.

Prerequisite: Advanced Composition.

8. ADVANCED JOURNALISM. Three quarters. Tu. Th. 3:00. 2 h.

Lectures, reports, practical work.

Prerequisite: Journalism.

9. HISTORY OF THE ENGLISH LANGUAGE. M. W. F. 11:00. 3 h.

Lectures and recitations.

10. ANGLO-SAXON. M. W. F. 3 h.

Bright's Anglo-Saxon Reader.

11. ANGLO-SAXON. M. W. F. 3 h.

Beowulf.

12. MIDDLE ENGLISH. Tu. Th. 2 h.

Supplementary reading, lectures, reports.

13. CHAUCER. Winter quarter. M. W. F. 3 h.

Lectures, readings, reports. Skeat's Texts.

14. SHAKESPEARE. Three quarters. 3 h.

The careful reading of two plays each quarter. Rolfe's Texts.

15. PRE-SHAKESPEAREAN DRAMA. 2 h.
Lectures, readings, reports. Manly's Specimens of Pre-Shakespearean Drama.
16. INTERPRETATION OF ENGLISH POETRY. 11:00. 2 h.
Lectures, readings, reports.
17. STUDY OF PROSE STYLE. Three quarters. 9:00. 2 h. Not open to freshmen.
Lectures, readings, reports.
18. ENGLISH FOR TEACHERS. 3 h.
Lectures, reports, discussions.
19. THE MODERN SHORT STORY. Autumn quarter. Tu. Th. 2 h.
Lectures, analysis of short stories, survey of the history of the short story form.

ENGLISH LITERATURE

Courses especially for Freshmen and Sophomores.

1. THE NOVEL. Autumn quarter. 2 h.
Six typical modern novels, lectures on how to read a novel, reports.
2. SHAKESPEARE. Winter quarter. 2 h.
Three plays: an early comedy, a tragedy, a later comedy.
3. POETRY. Spring quarter. 2 h. Especially intended for students who do not enjoy poetry but wish to do so.

Courses 1 to 3 make up an Introduction to Literature, but may be taken separately; they are open to all students, but not for full credit to upper-classmen majoring in literature.

4. AMERICAN LITERATURE. Three quarters. 3 h.
The chief American writers with emphasis on the growth of American ideals.
5. CLASSICAL MYTHOLOGY. See Department of Classics.

Courses for Sophomores and Upperclassmen.

6. HISTORY OF ENGLISH LITERATURE. Three quarters. 3 h. Not open to freshmen. Required in the sophomore year of all students majoring in English Literature.

A survey course covering the periods of English literature from the fourteenth to the twentieth century. It is designed to give by means of lectures a general knowledge of literary types and movements and of the chief writers of each period; and by means of class discussions a more detailed knowledge of selected masterpieces. A foundation course preparing the way for more specialized work or general reading.

7. LATIN POETRY IN ENGLISH. See Department of Classics.

8. GREEK POETRY IN ENGLISH. See Department of Classics.

Courses open only to Juniors and Seniors.

9. THE DRAMA. Three quarters. 3 h.

Autumn quarter: How to read plays; English and American drama from 1800 to 1893. Winter quarter: The contemporary drama. Spring quarter (which may be taken independently): Types of the older drama.

10. ENGLISH FICTION. Three quarters. 3 h.

The development of the English novel; lectures; required reading of six novels each quarter.

11. THE RENAISSANCE. Three quarters. 2 h.

A reading course in the literature of England from 1500 to 1642, omitting the drama.

12. THE CLASSICAL PERIOD. Three quarters. 2 h.

A reading course in the literature of England from 1642 to 1798, omitting the novel.

This course alternates with Course 11; omitted in 1920-21.

13. NINETEENTH CENTURY POETRY. Three quarters. 3 h.

A reading course in the poetry of England from 1798 to 1914.

14. NINETEENTH CENTURY PROSE. Three quarters. 2 h.

A reading course in the prose of England from 1798 to 1914, omitting the novel and the drama.

15. SHAKESPEARE. Three quarters. 3 h.

A reading course in which all the plays and poems are read in chronological order.

16. WORDSWORTH AND COLERIDGE. Spring quarter. 3 h.

An advanced course.

17. TEACHING OF ENGLISH IN HIGH SCHOOLS. Spring quarter. 2 h.
Advised only for students who have taught English in the high school, or expect to do so in the near future.

Students majoring in English Literature will select Course 6, twenty hours from courses 11 to 16, and if they intend to teach English, Course 17. Whatever their minors, they are urged to take at least two years of some language other than English, certain courses in the Department of English Language, and English History. Freshman Composition does not count as a minor for English Literature nor do the courses in the classics in English.

For courses for graduates only, see page 206.

GEOLOGY, MINERALOGY, AND GEOGRAPHY

I. GEOLOGY

1. PHYSIOGRAPHY. Autumn quarter. Two sections. Lectures. M. W. F. 9:00 and 1:00. One three-hour field or laboratory period a week to be arranged. 4 h. Occasional Saturday trips will be required. An introductory course open to all.

This course covers essentially the work heretofore done during the first three months in general geology. It includes a study of the atmosphere, the waters of the earth, the geologic and geographic changes of the surface of the earth, and the development of the present relief features.

The course may be taken with Geology 2 to complete 12 hours science. It should be elected by all students, without previous college training in the subject, who expect to specialize in geology or geography.

2. GENERAL GEOLOGY. Winter and spring quarters. M. W. F. 1:00. 4 h. Field or laboratory period, Tu. or Th., second quarter, 1:00 to 3:00; third quarter, 1:00 to 4:00. Two Saturday trips will be taken.

The course will consist of a study of the principles of geology, with special reference to the geological history of North America.

Prerequisite: Geology 1 (Physiography).

3. **ENGINEERING GEOLOGY.** Autumn quarter. M. W. 11:00. One three-hour field or laboratory period to be arranged. 3 h. Winter quarter, M. W. F. 11:00. One two-hour field or laboratory period to be arranged. 4 h. Open to upper-classmen who are not majoring in geology.

This course will include a general discussion of the principles of geology and the relations of geology to engineering operations.

4. **ECONOMIC GEOLOGY.** Three quarters. M. W. F. 10:00. Two hours of laboratory or field work to be arranged to suit the convenience of the students. 3 h.

A study of the mineral resources of the United States, including the origin and character of ore bodies, the ores of iron, copper, lead, zinc, gold, silver, etc.; the extraction and uses of the metals; fuels, building materials, fertilizers, mineral waters, etc.

Prerequisite: Geology 1 and 2 or 3; Mineralogy 1 is strongly recommended.

5. **STRUCTURAL GEOLOGY.** Autumn quarter. M. W. 11:00. 2 h.

Prerequisite: Geology 1 and 2, and General Physics.

6. **OIL GEOLOGY.** Winter and spring quarters. M. W. 11:00. 2 h.

Prerequisite: Geology 5.

7. **GEOLOGIC SURVEYING.** Spring quarter. Daily. 5 h. Open only to students who have made good records in the prerequisite courses. Given in alternate years.

This course is designed to train the student in all kinds of geologic field work. The methods used are those employed by the U. S. Geological Survey.

Prerequisite: Geology 5, and Mineralogy 1.

8. **ADVANCED GEOLOGY.** Winter and spring quarters. M. W. F. 2:00. 3 h. Given in alternate years.

Prerequisite: Geology 1, 2, 5; and Mineralogy 1.

9. **GEOLOGY OF COLORADO.** Autumn quarter. M. W. F. 3 h. Given in alternate years.

A study of the dynamic, structural, historical, and economic geology of Colorado.

This may be taken as a four-hour course.

Prerequisite: Geology 1 and 2, and Mineralogy 1.

10. GEOLOGY. (A CULTURE COURSE.) Spring quarter. M. W. 3:00.
2 h. Open to juniors, seniors, and graduates.

A lecture and reading course for general culture rather than scientific training.

This course does not count toward the science requirement, nor will credit be given to students who have credit for Geology 1, 2.

11. PALEONTOLOGY. Three quarters. 3 h. Open to advanced students in geology and biology, on consultation with the professor.

It will include lectures on the principles of paleontology, and the facts concerning the development of types which characterize the several periods of geologic time; laboratory work in the identification, classification and description of fossil animals and plants, and the discussion of their stratigraphic and biologic position and significance.

For courses for graduates only, see page 206.

II. MINERALOGY AND PETROLOGY

A. *Courses for Undergraduates.*

1. ECONOMIC MINERALOGY. Three quarters. Tu. Th., one lecture and recitation period and two laboratory periods. 3 h.

The course includes the determination of minerals of economic importance by chemical and physical tests and the study of collections of economic minerals.

Prerequisite: a course in general chemistry.

2. CRYSTALLOGRAPHY. Autumn quarter. M. W. F. 3 h.

An elementary course that includes the study of crystals and crystal models.

B. *Courses Open to Graduates and Undergraduates.*

3. ADVANCED MINERALOGY. Winter and spring quarters. One lecture and recitation period and two laboratory periods. 3 h.

A course in descriptive and determinative mineralogy. Minerals not studied in Course 1 are determined in the laboratory.

Prerequisite: courses 1 and 2.

4. **FIRE ASSAYING.** Autumn quarter. M. W. F. 1:00; one recitation and lecture period and three laboratory periods. 4 h.

Prerequisite: Economic Mineralogy and Qualitative Analysis. Ore Analysis, given in the Chemistry Department in the winter quarter, is recommended to students who take Fire Assaying.

5. **ADVANCED CRYSTALLOGRAPHY.** 3 to 6 hrs.

This course includes measurement of crystal angles with the reflecting goniometer, determination of indices and axial ratios, stereographic projection, and crystal drawing.

6. **OPTICAL MINERALOGY.** Autumn quarter. 3 h. Open on consultation.

7. **PETROGRAPHY.** Winter and spring quarters. 3 h. This course should be taken in the senior year by students who expect to do graduate work in geology.

Lectures, recitations, laboratory, work with petrographic microscope.

Prerequisite: Optical Mineralogy.

For courses for graduates only, see page 207.

III. GEOGRAPHY

1. **PHYSIOGRAPHY.** Autumn quarter. Two sections. Lectures M. W. F. 9:00 and 1:00. One three-hour field or laboratory period a week to be arranged. Occasional Saturday field trips will be required. 4 h.

This course includes a study of the atmosphere, the waters of the earth, the geologic and geographic changes of the surface of the earth, and the development of the present relief features.

It may be taken with Geography 2 and 3 or 2 and 4 to complete 12 hours in science.

2. **CLIMATOLOGY.** Winter quarter. M. W. F. 9:00. Laboratory, Th. 9:00-11:00, or 1:00-3:00. 4 h.

The course is based on a study of the atmosphere. It includes a thorough study of the climate of the world and a dis-

cussion of the relationships of climate to crops, industry and health.

Prerequisite: Geography 1, or Botany 1.

3. GEOGRAPHY OF NORTH AMERICA. Spring quarter. M. W. F. 9:00. Laboratory or field work, Th. 9:00-11:00. 4 h.

A study of the natural resources of the continent as factors in its cultural, historical and industrial development.

4. ADVANCED PHYSIOGRAPHY. Spring quarter. M. Tu. W. F. 8:00. 5 h. One three-hour field or laboratory period to be arranged. Not open to freshmen and sophomores. Given once in two or three years.

The course is a continuation of Geography 1. It deals largely with the laboratory side of the work and the methods of teaching physical geography and physiography.

Prerequisite: Geography 1.

5. GEOGRAPHY OF SOUTH AMERICA. Winter quarter. M. W. Th. F. Hours to be arranged. 4 h. Not open to freshmen. Not given every year.

A regional study of South America, with stress on the natural resources of the continent, and on the trade relations with the United States.

6. GEOGRAPHY OF EUROPE. To be arranged. 3 h. Not open to freshmen. Not given every year.

A regional study of the continent. Particular attention is given to the subjects: the geography and strategy of the war, the natural and political boundaries, and the influence of the resources and environment on the development of the culture of the various European states.

GERMANIC LANGUAGES*

GERMAN

1. ELEMENTARY COURSE. Three quarters. 8:00, 1:00. 5 h.
Grammar, pronunciation, reading; practice in writing and speaking German.
2. INTERMEDIATE COURSE. Three quarters. M. W. F. 9:00. 3 h.
Reading of selected masterpieces of German literature,

* So far as practicable, the classes in this department are conducted in the German language.

such as Lessing's *Minna von Barnhelm*, Schiller's *Jungfrau von Orleans*, Ludwig's *Zwischen Himmel und Erde*, Freytag's *Die Journalisten*.

Prerequisite: Course 1, or two years of high-school German. It is strongly recommended that Course 3 accompany Course 2.

3. COMPOSITION AND COLLOQUIAL PRACTICE. Throughout the year.

T. Th. 9:00. 2 h.

German themes and letters; drill in syntax and idiom.

Prerequisite: Course 1, or two years of high-school German. It is recommended that Course 3 be taken parallel with Course 2.

4. LESSING AS A DRAMATIST. Autumn quarter. 3 h.

Study of *Nathan der Weise*; discussions and reports.

Prerequisite: Course 2 or its equivalent.

5. VON SCHEFFEL'S *EKKEHARD*. One quarter. 3 h.

Reading and study of the entire novel.

Prerequisite: Course 2 or its equivalent.

6. FREYTAG'S *BILDER AUS DER DEUTSCHEN VERGANGENHEIT*. Winter quarter. 3 h.

Reading and study of selections.

Prerequisite: Course 4 or 5.

7. SCHILLER'S *WALLENSTEIN* AND *DIE BRAUT VON MESSINA*. Winter and spring quarters.

Readings from the other plays of Schiller; discussions and reports.

Prerequisite: Course 4 or 5.

8. GOETHE'S DRAMAS, EXCLUSIVE OF *FAUST*. One quarter. 3 h.

Readings, discussions, papers.

Prerequisite: Course 4 or 5.

9. THE GERMAN DRAMA OF THE NINETEENTH CENTURY. One quarter. 3 h. Open to advanced students who read German with facility.

Reading of representative plays and discussion of the problems which they present.

10. **ADVANCED COMPOSITION.** Three quarters. 2 h. Open to advanced students on consultation; recommended to prospective teachers of German.
Themes on various aspects of German life, with discussions in the German language.
11. **GERMAN PRONUNCIATION.** Two quarters. 1 h.
Special drill on the German sounds; the reading of selected German poems.
Prerequisite: Courses 1-3.
12. **GOETHE'S FAUST: PARTS I AND II.** Two quarters. 3 h. Open to graduate students and seniors.
13. **STUDIES IN THE HISTORY OF THE GERMAN NOVEL.** Two quarters. 3 h. Open to seniors and juniors who read German with facility.
Reading and discussion of selected works.
14. **THE GERMAN NOVELLE.** Two quarters. 3 h. Open to seniors and juniors who read German with facility.
Reading and discussion of representative stories.
This course alternates with Course 13.
15. **TEACHERS' COURSE.** Two quarters. 2 h.
The phonetics and pronunciation of German; methods of teaching German to foreigners; examination of grammars and readers; systematic study of one of the texts usually read in high schools.
16. **SCIENTIFIC GERMAN.** Three quarters. 2 h.
Prerequisite: Course 1, or two years of high-school German.
17. **THE HISTORY OF GERMAN LITERATURE FROM THE EARLIEST TIMES TO THE TIME OF KLOPSTOCK.** Two quarters. 3 h. Open to advanced students who read German with facility.
Lectures, collateral reading, reports.
18. **THE HISTORY OF GERMAN LITERATURE FROM THE TIME OF KLOPSTOCK TO THE PRESENT.** One quarter. 3 h.
Lectures, collateral reading, papers.
19. **GERMANIC HERO-SAGAS.** Two quarters. 2 h. Open to advanced students.
Lectures, recitations, collateral reading.

0. GERMANIC MYTHOLOGY. Two quarters. 2 h. Open to advanced students.

Lectures, recitations, collateral reading.

Primitive Germanic religion, customs and ideals of life, in their relation to German literature.

1. GENERAL PHONETICS. Autumn quarter. 2 h.

An introduction to the subject, with a careful consideration of speech-sounds, and of the bearing of phonetics upon the development of language.

2. POETICS. Two quarters. 2 h. Open to juniors and seniors.

The aim of poetry; forms of poetry; style; meter.

3. AN INTRODUCTION TO THE STUDY OF LANGUAGE. Two quarters. 2 h.

Aims and methods of linguistic study. Theories concerning the origin of language; grammatical gender; sound changes.

4. READING AND INTERPRETATION OF SELECTED GERMAN WORKS ON SOCIOLOGY AND PHILOSOPHY. Three quarters. 3 h. Open to graduate students and seniors. Given in 1918-1919.

For courses for graduates only, see page 207.

SCANDINAVIAN

1. DANO-NORWEGIAN. Three quarters. 3 h. Open to all.

An introduction to the study of the Danish and Norwegian languages and literatures.

2. MASTERPIECES OF NORWEGIAN LITERATURE. Two quarters. 3 h.

Selected readings, especially from the works of Ibsen and Björnson.

Prerequisite: Course 1, or a reading knowledge of Norwegian.

3. SWEDISH. Three quarters. 3 h. Open to all.

An introduction to the Swedish language.

4. TEGNER'S FRITJOFS SAGA. Two quarters. 3 h.

Prerequisite: Course 3, or its equivalent.

HISTORY

Primarily for Freshmen.

1. MODERN EUROPEAN HISTORY, 1500-1914.* Three quarters. 3 h.
2. ANCIENT HISTORY TO 800 A. D.* Three quarters. 3 h.

Not Open to Freshmen.

3. THE HISTORY AND LITERATURE OF THE HEBREWS AND JEWS TO 135 A. D. Three quarters. 2 h.
4. THE FRENCH REVOLUTION AND THE NAPOLEONIC ERA. One quarter. 3 h.
Prerequisite: Course 1.
5. EUROPE SINCE 1815. Three quarters. M. W. F. 9:00. 3 h.
Prerequisite: Course 1.
6. ENGLISH HISTORY. Three quarters. M. W. F. 2:00. 3 h.
The political, economic and social history of England.
This course is required by the School of Law for entrance.
7. HISTORY OF THE UNITED STATES, 1783-1850. Three quarters. M. W. F. 11:00. 3 h. Any quarter's work may be taken separately. This course is prerequisite for courses 20 and 21.
8. THE UNITED STATES SINCE 1850. Three quarters. 2 h.
The Civil War, Reconstruction, and present day United States History.

For Juniors and Seniors.

9. POLITICAL HISTORY OF ATHENS. One quarter. 3 h.
10. THE POLITICAL THEORIES OF PLATO AND ARISTOTLE. One quarter. 2 h.
11. THE FALL OF THE ROMAN REPUBLIC. One quarter. 3 h.
12. THE ROMAN EMPIRE. One quarter. 3 h.
13. THE MEDIÆVAL CHURCH AND THE REFORMATION. Three quarters. 3 h.

Open on consultation. This course will deal primarily with the institutional side of the mediæval and reformed churches.

* Juniors and seniors receive only partial credit.

14. ENGLISH MEDIAEVAL INSTITUTIONS. Three quarters. M. W. F.
10:00. 3 h. Open on consultation.
A detailed study, based largely upon source material, of the manor, the gilds, feudalism, and the institutions of the church during the thirteenth and fourteenth centuries.
15. THE ITALIAN RENAISSANCE. Two quarters. 3 h.
Special emphasis will be placed upon the artistic and literary side of the Renaissance.
Prerequisite: Course 1.
16. MODERN ENGLAND. Two quarters. 3 h.
17. INTERNATIONAL COOPERATION HISTORICALLY CONSIDERED. One quarter. 2-3 h.
A study of the conditions favoring and hindering international life. The actual international organizations and institutions before 1914. The growth of international arbitration. The peace movement and the league of nations idea.
18. ADVANCED MODERN EUROPEAN HISTORY. One quarter. 3 h.
A detailed study will be made of some limited phase of modern history, *e. g.*, the Near Eastern question or the history of France or Germany since 1870. The subject will be changed each year and the course may be elected more than once.
Prerequisite: Course 1.
19. A HISTORY OF RUSSIA. One quarter. 3 h.
20. THE WESTWARD MOVEMENT.* Three quarters. 2 h.
A study of the Western expansion of the English colonies and the United States.
Prerequisite: Course 7.
21. COLONIZATION OF NORTH AMERICA. Three quarters. 3 h.
The course surveys the colonizing activities in the West Indies and North America of Spain, France, the Netherlands, Sweden, and England, and the international struggles of the eighteenth century and the American Revolution.
22. FOREIGN RELATIONS OF THE UNITED STATES. Three quarters. 2 h.
A survey of the foreign relations of the United States since 1776.

* No credit given for less than three quarters.

23. RESEARCH COURSE IN THE HISTORY OF THE WEST. Three quarters. 2 h.
24. METHODS OF TEACHING HISTORY. One quarter. 2-3 h. Required of all students who are preparing to teach history.
25. HISTORIOGRAPHY. One quarter. 3 h. Required of all juniors and seniors majoring in history.

HOME ECONOMICS*

1. ELEMENTARY FOODS.† Spring quarter. 3 h. For students who have not had one unit of cookery in an accredited high school.

Nature and uses of foods, their history, production, manufacture, composition, and economic value; principles underlying the preparation of typical foods; practice in fundamental cooking processes.

2. SELECTION AND PREPARATION OF FOODS.† Three quarters. 3 h. Principles of selecting foods and methods of preparing them. Nutritive and economic value of various food combinations.

3. MEAL PLANNING AND SERVING.† Autumn and winter quarters. 3 h.

A general survey of the principles of cookery and their application to a wide range of food materials. Meal planning and table service.

4. EXPERIMENTAL COOKERY.† 3 h.

Experimental work in various problems in the field of cookery.

5. NUTRITION.† Autumn and winter quarters. 4 h.

Principles of human nutrition. Application to needs of individuals and groups under varying conditions. Special diets in disease. Methods of computing dietaries.

6. CATERING.† Three quarters. 3 h.

Computing cost; planning and serving of meals and refreshments for social functions.

* Credits listed in this department apply only on the B. S. degree.
† All students are required to wear white cotton or linen uniforms in cooking classes.

7. **GARMENT MAKING.** Autumn and winter quarters. 3 h. Required of students who have not had one unit of sewing in an accredited high school.

Essentials of sewing applied to household mending, the making of undergarments, simple dresses, etc. Choice of materials, elementary drafting, pattern making.

8. **DRESSMAKING.** Three quarters. 3 h.

Continues the work of Course 7 with broader and more difficult applications. Study of materials; problem of home-made and commercial clothing; practical applications. Making of shirt waists and dresses of cotton, silk and woolen fabrics.

9. **ADVANCED DRESSMAKING.**

Designing and draping on the form. Advanced work in practical applications.

10. **TEXTILES.** Spring quarter. 3 h.

Study of the production and manufacture of textile materials. Identification of fabrics.

11. **HOUSEHOLD MANAGEMENT.** Three quarters. 3 h.

Organization of the household; the budget and its apportionment; application of principles of scientific management to the household.

12. **CARE OF THE CHILD.** Spring quarter. 3 h.

This course will give special emphasis to the food and hygiene of the young child.

*Courses given in other departments, but particularly related to
Home Economics.*

ART AND DESIGN. Autumn and winter quarters. 3 h.

THE HOUSE; ITS FURNISHING AND DECORATION. Three quarters. 2 h.

BACTERIOLOGY. Autumn quarter. 4 h.

PHYSIOLOGY. Autumn and winter quarters. 2 h.

ECONOMIC BOTANY. Winter quarter. 3 h.

BIOCHEMISTRY. Spring quarter. 5 h.

For description of these courses refer to the several departments.

LIBRARY SCIENCE AND PRACTICE

1. LIBRARY SCIENCE AND PRACTICE. Three quarters. Th. 3:00, lectures; five hours each week, laboratory. 2 h.

Lectures by members of the library staff, and invited members of the profession. The course aims to give an adequate working knowledge of library usage. Visits to neighboring libraries, binderies, and publishing houses supplement lectures and laboratory instruction.

MATHEMATICS

1. TRIGONOMETRY. Autumn quarter. 3 h.
Presupposes one unit of high-school algebra.
2. COLLEGE ALGEBRA. Winter quarter. 3 h.
Presupposes one unit of high-school algebra.
3. TRIGONOMETRY. Spring quarter. 3 h.
This course is intended for students not enrolled in the College of Liberal Arts.
4. ANALYTICAL GEOMETRY. Spring quarter. 3 h.
Prerequisite: courses 1 and 2, or their equivalent.
5. DIFFERENTIAL AND INTEGRAL CALCULUS. Three quarters. 3 h.
Prerequisite: courses 1, 2, and 4.
6. DIFFERENTIAL EQUATIONS. Autumn and winter quarters. 3 h.
Prerequisite: courses 1, 2, 4, and 5.
7. LIE THEORY OF DIFFERENTIAL EQUATIONS. Spring quarter. 3 h.
Prerequisite: Course 6.
8. APPLIED GEOMETRY. Spring quarter. 3 h.
Prerequisite: 1 unit of high-school geometry.
9. THEORY OF EQUATIONS.* Spring quarter. 3 h. Not given in 1919-1920.
Prerequisite: courses 1, 2, 4, and 5.
10. ANALYTIC SOLID GEOMETRY. Autumn and winter quarters. 3 h.
Prerequisite: Course 4.
11. MODERN GEOMETRY. Spring quarter. 3 h.
Prerequisite: courses 4 and 9.

* Given only in alternate years.

12. TEACHING OF MATHEMATICS.* Autumn and winter quarters. 2 h.
Not given in 1919-1920.
13. HISTORY OF MATHEMATICS.* Autumn and winter quarters. 2 h.
14. MATHEMATICAL THEORY OF INVESTMENT. Spring quarter. 3 h.
15. STATISTICS. Spring quarter. 2 h.
Prerequisite: 1 unit of high-school algebra.
16. COURSES IN COMPLEX FUNCTIONS, PROJECTIVE GEOMETRY, AND
TRANSCENDENTAL FUNCTIONS.
These courses will be given when requested by five or more
students.

For courses for graduates only, see page 209.

MUSIC

1. HARMONY. Three quarters. Tu. Th. 10:00. 2 h.
Textbook: Bussler.
2. COURSE 1 CONTINUED. Three quarters. 2 h.
Textbook: Bussler.
Prerequisite: Course 1.
3. COUNTERPOINT. Three quarters. 2 h.
Textbook: Bridge.
Prerequisite: Courses 1 and 2.
4. CANON AND FUGUE. Three quarters. 2 h.
Textbook: Prout.
Prerequisite: Courses 1, 2, and 3.
5. COMPOSITION AND ORCHESTRATION. Three quarters. 2 h.
Prerequisite: Courses 1, 2, and 3.
6. HISTORY OF MUSIC. Three quarters. Tu. Th. 2:00. 2 h. Open to
all.
Lectures.
7. AESTHETICS AND PHILOSOPHY OF MUSIC. Winter and spring
quarters. W. 7:30. 1 h. Open only to graduate students
and seniors.
Seminar.

* Given only in alternate years.

PHILOSOPHY

1. HISTORY OF PHILOSOPHY. Three quarters. M. W. F. 11:00. 3 h.
Open to all.
2. INTRODUCTION TO PHILOSOPHY. Three quarters. M. W. F. 9:00.
3 h. Open to all.
3. HISTORY AND PHILOSOPHY OF EDUCATION.* Three quarters. M.
W. F. 10:00. 3 h. Open to all.
4. ETHICS. Autumn and winter quarters. Tu. Th. 10:00. 2 h.
Open to all.
5. LOGIC. Spring quarter. Tu. Th. 10:00. 2 h. Open to all.
6. ELEMENTARY AESTHETICS.* Winter and spring quarters. Tu.
Th. 9:00. 2 h. Open to all.
7. ADVANCED AESTHETICS.* Autumn quarter. Tu. Th. 9:00. 2 h.
Prerequisite: Elementary Aesthetics.
8. METAPHYSICS. To be arranged. For advanced students.
9. HISTORY OF SCIENCE.* Autumn quarter. Tu. 7:30 to 9:00. 2 h.
Open to all.
10. PHILOSOPHY OF HISTORY.* Winter quarter. M. W. F. 3:00. 2 h
Open to all.

Philosophy of history with special reference to the present world outlook.

PHYSICAL EDUCATION

Two years' work in Physical Education is required of students in the College of Liberal Arts. Beyond this no academic credit is given for any of the courses in Physical Training except the Teachers' Course, and the Playground Course.

COURSES FOR MEN

1. ELEMENTARY GYMNASTICS. Three quarters. M. W. F. 1 h.
Open to all.
Calisthenics; light apparatus work; marching and drills;
indoor and outdoor games.
2. BOXING AND WRÉSTLING. Winter quarter.

* None of these courses count as requirements in Philosophy until basic courses 1, 2, 4 and 5 have been taken.

3. **TEACHERS' COURSE.** Three quarters. 1 h.

A study of the major branches of sports: football, basketball, baseball, track and field athletics, each in season. Lectures on the game, offense, defense, the rules, the several positions, daily programs of practice, methods of coaching. The class instruction is paralleled by practical work.

4. **ATHLETICS.** Throughout the year. Elective for students who are physically competent.

Football, basketball, soccer, tennis, baseball, track and field work.

COURSES FOR WOMEN

1. **GYMNASTICS AND OUTDOOR SPORTS.** Three quarters. Three hours a week. 1 h. Required of all freshmen.

a. Outdoor work, autumn and spring terms.* Organized sports: archery, baseball, basketball, golf, tennis, and volley ball.

b. Indoor work, winter term.* Gymnastics, two hours: marching, gymnastic free standing exercises, apparatus. Sports, one hour: basketball, folk dancing, indoor baseball, interpretive dancing, volley ball.

2. **CORRECTIVE GYMNASTICS.** Two hours a week.

Substituted for Course 1b when the physical examination indicates the need of special corrective work.

3. **RESTRICTED GYMNASTICS.**

Substituted for Course 1b when the medical examination indicates the need of restricted work.

4. **ELECTIVE GYMNASTICS.** Winter term.* Open to all who have completed Course 1 or its equivalent.

5. **ELECTIVE ATHLETICS.** Open to all.

6. **ELECTIVE ELEMENTARY DANCING.** Winter term.* Open to students who have had no previous training.

7. **ELECTIVE ADVANCED DANCING.** Winter term.* Open to all who have completed Course 6 or its equivalent.

* Autumn term, September to November. Winter term, November to April. Spring term, April to June.

8. PLAYGROUND COURSE. One quarter. Four hours a week with additional hours in first aid. 3 h. Elective.

a. Theory. (1) Lectures, assigned readings, papers, book reviews. Nature and function of play; economic and sociologic needs for playgrounds; development of playground movement in America; organization of playground movements; practical conduct of playgrounds—equipment, instruction, supervision, activities, aims. (2) First Aid. Ten lectures of one and a half hours each. Required of all playground students. Recitations, assigned readings, practice in bandaging. Course given by a physician.

b. Practical work. (1) Practice teaching: practice in teaching dances, organized games, team games. (2) Practice in folk dancing for all ages; relay races; organized games; team games—volley-ball, captain-ball, basketball (women's), indoor baseball, track.

PHYSICS

1. GENERAL PHYSICS.* Lectures, two hours, M. Th. 11:00; recitations, two hours. 4 h.

a. Mechanics and Sound; autumn quarter. b. Heat and Light; winter quarter. c. Electricity and Magnetism; spring quarter.

Prerequisite: An elementary knowledge of plane trigonometry.

2. EXPERIMENTAL PHYSICS. One three-hour period per week. 1 h. Quantitative laboratory work in the subjects indicated in Course 1a, b, c.

Prerequisite: An elementary knowledge of plane trigonometry.

* Course 1 is an elementary but thorough presentation of the fundamental facts, principles, and applications of modern physics. Although the subject matter is divided for convenience into quarters, students are expected to continue the study throughout the year.

The lectures are fully illustrated by apparatus and by experiments. The recitations are based upon both the lectures and a textbook which is studied systematically in parallel with the lectures.

It is strongly recommended that course 2 be taken in parallel with course 1. When not so taken course 1 or its equivalent must precede.

Course 1 (and in many cases also course 2), or its equivalent, are prerequisite for all those that follow. They are taken regularly in the sophomore year but may be taken by freshmen with the requisite preparation. They should be taken as soon as possible by those whose major subject is physics, mathematics, or chemistry.

3. ANALYTICAL MECHANICS—STATICS. Spring quarter. M. W. F. 11:00. 3 h. Taken regularly in the sophomore year.

A study of the conditions of equilibrium of particles and rigid bodies; centers of mass; moments of inertia.

Prerequisite: Course 1, and calculus; open, however, to those taking the integral calculus.

4. ANALYTICAL MECHANICS—DYNAMICS. Autumn and winter quarters. 3 h. M. W. F. 9:00. Taken regularly in the junior year.

A study of the motion of particles and rigid bodies. Emphasis is laid upon the fundamental physical principles of the subject and an attempt is made to give the student a certain facility in translating physical conceptions into mathematical symbols and mathematical formulae into physical ideas.

Prerequisite: Course 1 and calculus.

5. TEACHERS' TRAINING COURSE IN PHYSICS. Spring quarter. 3 h.

A course designed primarily for those who expect to teach physics in secondary schools. Such topics as the proper arrangement and aims of a secondary-school course, laboratory equipment and instruction, and ways and means of teaching the various subjects, will be considered in lectures, discussions, and reports. The teaching of General Science will also be discussed. Considerable outside reading will be required.

Prerequisite: courses 1 and 2 or their equivalent.

6. THEORY OF ELECTRICITY AND MAGNETISM I. Autumn quarter, M. W. 11:00. 2 h. Winter quarter, M. W. F. 11:00. 3 h. Taken regularly in the junior year.

The elements of the mathematical theory of electricity and magnetism with applications to the general theory of instruments of fundamental importance in electrical measurements.

Prerequisite: courses 1, 3 and 4 and calculus; open however, to those who are taking Course 4.

7. THEORY OF ELECTRICITY AND MAGNETISM II. Spring quarter. 3 h. Taken regularly in the junior year.

An extension of Course 6 devoted chiefly to alternating current theory, problems and applications. Courses 6 and 7 are designed to furnish a thorough knowledge of fundamental

ideas and principles and a preparation for the study of advanced electrodynamics.

Prerequisite: Course 6 and calculus.

8. ELECTRICAL MEASUREMENTS I. Autumn quarter. Three three-hour periods per week. 3 h. Taken regularly in the junior year.

A laboratory course intended to accompany and to supplement Course 6.

Prerequisite: courses 1, 2, and calculus.

9. ELECTRICAL MEASUREMENTS II. Winter quarter. One lecture and two three-hour laboratory periods per week. 3 h. Not given 1920-1921.

This course deals with selected electrical problems of considerable difficulty, requiring a rather advanced knowledge of the theory of electricity and magnetism.

Prerequisite: courses 6, 8, and calculus.

10. PROPERTIES OF MATTER. Spring quarter. Lectures one hour; laboratory, two two-hour periods. 3 h.

Lectures on molecular physics and the properties of matter with laboratory work in selected problems of considerable experimental difficulty.

Prerequisite: courses 1, 2, 3, 4, and calculus.

11. HEAT AND THERMODYNAMICS. Autumn quarter. Lectures and recitations. 3 h. Not given in 1920-1921.

A study of the more important phenomena of heat and elementary thermodynamics.

Prerequisite: courses 1 and 2, and calculus.

12. PHOTOGRAPHY. Spring quarter. 3 h. Lectures, recitations, and laboratory.

A practical course dealing with such topics as the theory and use of lenses, development and developers, enlargements, lantern slides, and the art of photography.

Prerequisite: courses 1 and 2 or their equivalent.

13. THE THEORY AND PRACTICE OF OPTICAL INSTRUMENTS. Spring quarter. 3 h.

A study of the elementary principles of optics and their

application to the theory of optical instruments. The construction, performance, and uses of such instruments as the eye, camera, telescope, microscope, projection lantern, spectroscope, polariscope, etc., will be explained in some detail.

Prerequisite: courses 1 and 2 or their equivalent.

14. **THEORY OF LIGHT.** Winter quarter. Lectures, one hour; two three-hour laboratory periods. 3 h. Not given in 1920-1921.

A course designed to give the student a critical knowledge of the fundamental phenomena of light. The laboratory work consists of accurate measurements in dispersion, interference, diffraction and polarization.

Prerequisite: courses 1, 2, and 13.

15. **ELECTRIC WAVES AND RADIO-COMMUNICATION.** Autumn quarter. 3 h. Not given in 1920-1921.

A study of electromagnetic waves and the theory of radio-communication involving at least a fair knowledge of electricity and magnetism.

Prerequisite: courses 6 and 7 or their equivalent.

16. **WIRELESS TELEGRAPHY AND TELEPHONY.** Winter quarter. 3 h. Not given in 1920-1921.

A course dealing with practical methods and the theory and functions of the various apparatus employed.

Prerequisite: Course 15 or its equivalent.

17. **ELECTRICAL MEASUREMENTS III.** Spring quarter. Two three-hour periods. 2 h.

A course in electrical measurements at radio frequencies intended primarily to supplement Course 16, but may be taken by those having had courses 6 to 9 inclusive.

18. **VECTOR ANALYSIS.** Autumn and winter quarters, 3 h.; spring quarter, 2 h.

A study of vector analysis as developed by Gibbs with applications to problems in mathematical physics.

Prerequisite: courses 4, 6, and calculus, differential equations advised.

40. **DESCRIPTIVE ASTRONOMY I.** Autumn quarter. M. W. F. 8:00. 3 h.

A course conducted by means of lectures and recitations.

It is designed as a course for those wishing a general knowledge of the principal facts, theories and methods of astronomy and provides a necessary introduction to Course 41. The lectures are illustrated by slides, models and apparatus.

Prerequisite: an elementary knowledge of trigonometry.

41. DESCRIPTIVE ASTRONOMY II. Winter quarter. M. W. F. 8:00. 3 h.

A continuation of Descriptive Astronomy I.

Prerequisite: an elementary knowledge of trigonometry.

42. INTRODUCTION TO MATHEMATICAL ASTRONOMY. Winter and spring quarters. 2 h.

A course dealing with selected portions of spherical, practical and theoretical astronomy involving mathematical treatment of intermediate difficulty.

Prerequisite: courses 4, 40, and calculus; differential equations advised.

Courses in the College of Engineering may be found on page 179, and those in the Graduate School on page 212.

PSYCHOLOGY

1. GENERAL PSYCHOLOGY. (Education 1.) Two sections. Autumn and winter quarters. M. W. F. 1:00, 2:00, with an additional hour to be arranged for recitations and conferences. 3 h. Counts for the minimum requirement in psychology.

This course gives, by means of lectures, recitations, experiments, and demonstrations, a general survey of the essential facts and fundamental laws of mind. It is prerequisite to all other courses in psychology and to the courses in education. The student who expects to make psychology or education a major should take this course in his sophomore year.

2. COMPARATIVE PSYCHOLOGY. (Education 2.) Spring quarter. M. Tu. W. Th. 2:00. 4 h. Continuation of Course 1. Counts for the minimum requirement in psychology.

A systematic study of mental development in the race and in the individual. The course will sketch the development of the nervous impulse, of animal sense organs with reference to their habits, of instincts and intelligence in animals, and

in cases of arrested development. With these simpler facts as a basis the development of mental functions in the individual in childhood and adolescence will be discussed with reference to educational theory.

3. **ADVANCED PSYCHOLOGY.** Autumn quarter. Tu. Th. 9:00. 2 h.
Not given 1920-1921. Does not count for the minimum requirement in psychology.

Lectures, discussions, readings, and a thesis.

An intensive study of selected problems; introspective exercises and an analytic study of mental phenomena.

Prerequisite: Course 1 or its equivalent.

4. **PATHOLOGICAL PSYCHOLOGY.** Winter and spring quarters. Tu. Th. 9:00. 2 h. Open on consultation. Does not count for the minimum requirement in psychology.

Lectures, readings, and a thesis.

Disorders of sensation, memory, imagination, association, the emotions and volition. As Course 2 traces the development of mental functions this course will discuss the order of their impairment. Mental hygiene and a study of such psychoses as throw light on the general and genetic problems of psychology.

Prerequisite: two courses in psychology.

5. **EXPERIMENTAL PSYCHOLOGY.** Three quarters. Tu. Th. 1:00-3:00, laboratory; 3:00, lecture. 3 h. Counts for the minimum requirement in psychology.

This course serves as an introduction to experimental psychology and aims to familiarize the student with modern psychological methods, apparatus, and results. Typical experiments and demonstrations in the psychology of the senses, feeling and movement, with a study of individual differences. Experiments in perception and the higher mental processes; time, intensity, and extensity of mental phenomena; mental and physical tests and measurements; statistical methods.

6. **EDUCATIONAL PSYCHOLOGY.** (Education 2.) Spring quarter. M. W. F. 1:00. 3 h. Continuation of Course 1. Counts for the minimum requirement in psychology.

Lectures, readings, and a thesis.

The principles of psychology, and the results of experimental pedagogy which are modifying the course of study and

methods of instruction in the older schools of this country will be presented in this course. It is recommended that those students who are primarily interested in education take this course as a continuation of Course 1.

Prerequisite: Course 1, or its equivalent.

7. THE PSYCHOLOGY OF GRAMMAR-SCHOOL AND HIGH-SCHOOL SUBJECTS. Tu. Th. 10:00. 2 h. Not offered in 1919-1920.

Lectures, recitations and a thesis.

This course describes the mental functions involved in the mastery of each school subject of grammar-school and high-school grade. The topics will be discussed from the point of view of classroom practice, then from that of experimental inquiry, and finally from the point of view of the causes of failure in different subjects. The purpose of the course is to apply the principles of psychology directly to teaching.

8. THE PSYCHOLOGY OF ADVERTISING. Autumn quarter. 2 h.

Laboratory exercises and recitations.

The strength of advertisements of various classes will be tested by a rather accurate statistical method. The same method will be applied to advertisements written by students. Size, position, medium, headlines, legibility and various other problems of advertising will be studied.

9. MENTAL TESTS.

- (a) Winter and spring quarters. Tu. Th. 10:00. 2 h. Lectures, practice, and readings.

The lectures will describe the more important tests of intelligence and motor processes and their application both to children and adults; and the results obtained from the recent wide use of psychological examinations. Under supervision each student will be required to make a number of selected tests.

- (b) Spring quarter. M. W. F. 10:00. 3 h.

The same as (a) except that a somewhat smaller number of tests will be required of the students.

10. SOCIAL PSYCHOLOGY. (Education 13.)

11. ANATOMY OF THE NERVOUS SYSTEM.

See announcement of the School of Medicine.

For courses for graduates only, see page 213.

ROMANCE LANGUAGES

FRENCH

1. BEGINNERS' COURSE. Three quarters. 8:00, 9:00, 3:00. 5 h.
Grammar, pronunciation, translation, dictation.
- 1a. INTERMEDIATE COURSE. Three quarters. 11:00. 3 h. For students who have had one year of high-school French.
2. SECOND-YEAR READING COURSE. Three quarters. M. W. F. 9:00, 11:00. 3 h.
Modern French stories and plays; selected lyrics; general view of the history of French literature.
Prerequisite: Course 1, or two years of high-school French. Students are advised to take Course 3 with Course 2.
3. SECOND-YEAR PROSE COMPOSITION AND ORAL PRACTICE. Three quarters. Tu. Th. 9:00. 2 h.
Review of French grammar; phonetics.
Prerequisite: Course 1, or two years of high-school French. Students are recommended to take Course 2 with Course 3.
4. SEVENTEENTH CENTURY FRENCH.* Autumn quarter. M. W. F. 9:00. 3 h. Not given in 1920-1921.
French classic tragedy; Corneille, Racine. Advanced prose composition.
5. SEVENTEENTH CENTURY FRENCH.* Winter quarter. M. W. F. 9:00. 3 h. Not given in 1920-1921.
Comedy; Molière. Advanced prose composition.
6. SEVENTEENTH CENTURY FRENCH.* Spring quarter. M. W. F. 9:00. 3 h. Not given in 1920-1921.
Malherbe, Boileau, La Fontaine, Mme. de Sévigné, Mme. de la Fayette, et al. Advanced prose composition.
7. EIGHTEENTH CENTURY FRENCH.* Autumn quarter. M. W. F. 9:00. 3 h.
1700-1750.
8. EIGHTEENTH CENTURY FRENCH.* Winter quarter. M. W. F. 9:00. 3 h.
1751-1800.

* Given in alternate years.

9. EIGHTEENTH CENTURY FRENCH.* Spring quarter. M. W. F.
9:00. 3 h.
The French theater of the eighteenth century.
10. NINETEENTH CENTURY FRENCH.* Autumn quarter. M. W. F.
11:00. 3 h. Not given in 1920-1921.
Romantic School.
11. NINETEENTH CENTURY FRENCH.* Winter quarter. M. W. F.
11:00. 3 h. Not given in 1920-1921.
Realistic and Naturalistic Schools.
12. NINETEENTH CENTURY FRENCH.* Spring quarter. M. W. F.
11:00. 3 h. Not given in 1920-1921.
Modern movements in French literature with literary criticism.
13. SIXTEENTH CENTURY FRENCH.* Autumn quarter. M. W. F.
11:00. 3 h.
Rabelais, Montaigne, the Pléiade.
14. THE ORIGINS AND DEVELOPMENT OF THE FRENCH DRAMA UP TO
THE PRESENT TIME.* Winter quarter. M. W. 11:00. 2 h.
15. THE ORIGINS AND DEVELOPMENT OF THE NOVEL IN FRANCE.*
Spring quarter. M. W. 11:00. 2 h.

For courses for graduates only, see page 214.

SPANISH

1. BEGINNERS' COURSE. Three quarters. 8:00, 9:00, 10:00, 1:00. 5 h.
Grammar, pronunciation, translation, dictation.
2. SECOND-YEAR READING COURSE. Three quarters. M. W. F. 9:00,
11:00. 3 h.
General view of Spanish literature. Spanish stories, plays,
and lyric verse.
Prerequisite: Course 1, or two years of high-school Spanish.
Students are recommended to take Course 3 with Course 2.
3. SECOND-YEAR COMPOSITION AND ORAL PRACTICE. Three quarters.
Tu. Th. 9:00. 2 h.

* Given in alternate years.

Prerequisite: Course 1, or two years of high-school Spanish. Students are recommended to take Course 2 with Course 3.

4. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Autumn quarter. M. W. F. 10:00. 3 h. Not given in 1920-1921.

The eighteenth century.

5. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Winter quarter. M. W. F. 10:00. 3 h. Not given in 1920-1921.

The Romantic School.

6. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Spring quarter. M. W. F. 10:00. 3 h. Not given in 1920-1921.

Modern literature. The literature of Spanish America.

7. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Autumn quarter. M. W. F. 10:00. 3 h.

The sixteenth century.

8. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Winter quarter. M. W. F. 10:00. 3 h.

Cervantes, Lope de Vega, et al.

9. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Spring quarter. M. W. F. 10:00. 3 h.

1621-1700.

10. ADVANCED SPANISH COMPOSITION AND ORAL PRACTICE. Th. 11:00. 1 h.

For courses for graduates only, see page 215.

ITALIAN

1. BEGINNERS' COURSE. Three quarters. M. W. F. 3 h.
Grammar, pronunciation, translation, dictation.

2. DANTE'S DIVINE COMEDY.* Three quarters. M. W. F. 3 h. Not given in 1920-1921.

* Given in alternate years.

3. GENERAL VIEW OF ITALIAN LITERATURE.* Autumn quarter. M.
W. F. 3 h.
From the beginnings to 1500.
4. GENERAL VIEW OF ITALIAN LITERATURE.* Winter quarter. M.
W. F. 3 h.
The cinquecento.
5. GENERAL VIEW OF ITALIAN LITERATURE.* Spring quarter. M. W.
F. 3 h.
From 1600 to the present time.

For courses for graduates only, see page 215.

NOTE—Students are recommended to take up the Romance Languages in the following order: French, Spanish, Italian. They should not elect courses simultaneously in Spanish and Italian without consulting the instructor. •

ELECTIVES IN THE PROFESSIONAL SCHOOLS

In accordance with the general plan outlined on page 57, the courses tabulated below may be elected in the professional schools.

COLLEGE OF ENGINEERING

The following subjects in the College of Engineering may be taken by all students in the College of Liberal Arts:

Mechanical Drawing, 4; Freehand Drawing, 3; Descriptive Geometry, 4; Surveying, 12; Least Squares, 3; Applied Mechanics, 6; Graphic Statics, 4; Kinematics, 3; Hydraulics, 4; Thermodynamics, 3; Dynamo Electric Machinery, 6.

SCHOOL OF LAW

Students in the College of Liberal Arts in their fourth year who declare their intention of proceeding to the degree LL.B. in the University of Colorado, may be allowed credit for thirty-three hours on the completion of all work required in the freshman year of the School of Law.

SCHOOL OF MEDICINE

The two degrees of M.D. and A.B. may be conferred on the completion of seven years' work, one year's credit (45 hours) being

* Given in alternate years.

allowed on the completion of the full freshman work in the School of Medicine.

Under this arrangement a student would naturally choose either zoology or chemistry as a group major.

Students in the junior or senior year in the College of Liberal Arts, on the approval of their major professor and the Dean, may be allowed to elect up to forty-five hours in the School of Medicine from the following subjects: Anatomy, 13; Histology and Embryology, 12; Freshman Physiology, 12; Sophomore Physiology, 3; Bacteriology, 7; Advanced Bacteriology, 4; Biochemistry, 12; Advanced Biochemistry, 3.

COLLEGE OF COMMERCE

FACULTY

FREDERICK A. BUSHEE, Ph.D.,
Director of the College of Commerce.

The Faculty of the College of Commerce consists of Professors and Instructors whose work contributes to the courses.

GENERAL STATEMENT

FUNCTION

The College of Commerce was opened September, 1906. Its purpose is to provide professional training for the practical demands of business. It aims to prepare men for careers in Domestic and Foreign Commerce and Banking, Insurance, Transportation, Trade and Industry, Journalism, and in branches of the Public Service, like the Consular, in which a knowledge of business is essential. Heretofore universities and colleges have done all they could for the young man who wishes to become a minister, teacher, lawyer, physician, journalist or engineer. The College of Commerce is developed in response to the demands of (1) enlarged commercial operations, (2) the public service, (3) the desire of parents to give their sons a college education and at the same time prepare them for their life work in business.

It is well known that the knowledge of the details of any particular line of business can be acquired only by actual experience. But the broad training given students in this department of the University will enable them to acquire the routine technicalities of any concern more easily than those whose minds have not been made flexible and acute by systematic training. They will thus the more readily assume positions of leadership and responsibility in the business world.

The curriculum of the College of Commerce is prepared with the following aims in view: (1) to furnish a certain amount of culture work which is the mark of college training. (2) To familiarize the student with the nature and workings of the industrial organism. This is attempted by studies in commercial geography, economics and history of commerce, transportation, banking, business organization and management. (3) To impart a certain amount of knowledge of the physical and chemical sciences and their applications to the industrial arts. (4) To give an acquaintance with the articles of commerce and the various industrial processes through which they pass. (5) To make the student acquainted with the principles of commercial law. (6) To supply an equipment in modern languages. (7) To afford an opportunity to acquire some knowledge of a particular line of trade.

ORGANIZATION

The College of Commerce offers four courses: 1. Banking. 2. Manufactures. 3. Journalism. 4. Trade, Transportation and Consular Service.

ADMISSION AND FEES

The requirements for admission and the fees are the same as for the College of Liberal Arts. See pages 27, 34.

SUBJECTS IN THE COLLEGE OF COMMERCE*

(REQUIRED FOR GRADUATION.)

FRESHMAN YEAR

	I.	II.	III.	IV.
	Banking	Mfrs.	Jour.	Trade, Consular Service, etc.
ENGLISH LANGUAGE...	9	9	9	9
SCIENCE	15	Chem. } 15	15	15
HISTORY	9	9	9	9
FRENCH, GERMAN OR SPANISH	15	15	French } 15	15
REQUIRED PHYSICAL OR MILITARY TRAIN- ING	3	3	3	3
	—	—	—	—
	51	51	51	51

SOPHOMORE YEAR

	Math.	Math.	Biol.	Ec. Bot. 3 or (Ec. Geol. 6)
MATH., SCIENCE.....	Math } 15	Math. } 15	Biol. } 6	
PSYCHOLOGY .....	..	..	9	9
HISTORY OR ECON....	15	15	15	15
FREE ELECTIVES.....	15	15	15	18
REQUIRED PHYSICAL OR MILITARY TRAIN- ING	3	3	3	3
	—	—	—	—
	48	48	48	48

* In addition to regular courses in the departments open to election, provision will be made for lectures on current problems, and practical topics by prominent business men.

JUNIOR AND SENIOR YEARS

COMMERCIAL LAW....	6	6	6	6
ECONOMICS	40	40	40	40
ENGLISH LANGUAGE AND LITERATURE OR CLASSICS .....	..	..	30	..
PHYSICS .....	..	15	..	..
FREE ELECTIVES.....	41	26	11	41
	—	—	—	—
	87	87	87	87

The following courses are especially recommended for students in the College of Commerce:

Principles of Advertising.

Business Organization and Scientific Management.

History of Commerce.

Commercial Geography.

Economic History of the United States.

Taxation.

Transportation.

Corporations.

Money and Banking.

Journalism.

Diplomatic and Consular Service.

Modern Accounting.

Life Insurance.

Mathematical Theory of Investments.

For a further description of these courses, see departments of Mathematics, and Economics and Sociology in the College of Liberal Arts.

COLLEGE OF EDUCATION

FACULTY

FRANK E. THOMPSON, A.B.,
Director of the College of Education.

The Faculty of the College of Education consists of Professors and Instructors in the College of Liberal Arts whose work contributes to the various courses.

GENERAL STATEMENT

ORGANIZATION

A College of Education, to be a division of the College of Liberal Arts, was authorized by the Board of Regents in January, 1908. The report of the committee on a course of study was adopted in April, and the College was regularly opened for work in September of that year.

FUNCTION

It is intended that this College shall provide systematic and comprehensive training for those who may choose education as a *profession*. That there may be such a profession becomes every year more apparent, and it becomes apparent, too, that preparation for service in it must be as complete as for service in other professions. No human endeavor is more important than education; no class of workers should be more carefully prepared than teachers. The need of the present time, expressed in most quarters in a demand is that many of the teachers in the elementary schools, all of the teachers in the high schools, and all persons engaged in supervision of instruction shall have as a minimum of scholarship the A.B. degree, or its equivalent, and shall have made intensive study of the history, theory and practice of education. There is need in each state for at least one professional school of collegiate rank which shall afford opportunity for training, both in theory and practice, for teaching, supervisory, and administrative positions in elementary, secondary, and normal schools.

The College of Education is designed to satisfy this need; it is a device of organization and administration to secure for the teacher studies along pertinent lines and in right proportions and sequence. The student looking toward teaching as a profession is assisted and directed in the choice and prosecution of his work from the time of his matriculation until his graduation. He does not sacrifice anything of the culture of the Liberal Arts course.

DESIGN OF CURRICULUM

The curriculum is designed to furnish to the prospective teacher who would be thoroughly equipped for his work:

1. Courses calculated to give sound scholarship and that culture rightly expected of the college graduate.

2. Courses in the subjects he expects to teach, of such character and so organized in sequence that when graduated he will be in some measure an authority in these subjects.

3. Courses that will give knowledge of:

a. The constitution and needs of society.

b. Child and adult natures and their possibilities for modification.

c. The educational values of the various school subjects.

d. The art of instruction—this knowledge to be both general and concrete and to come in large measure from actual practice in teaching.

e. The principles underlying the organization and management of public schools.

f. Educational history and its significance, both for the present and the future.

ADMISSION, FEES, AND ADVANCED STANDING

See pages 27, 34.

COURSES OF STUDY LEADING TO THE DEGREE BACHELOR OF ARTS AND A BACHELOR'S DIPLOMA IN EDUCATION

The course of study of the College of Education covers a period of four years, 186 hours of credit being required for graduation. Graduates receive the degree of Bachelor of Arts and a Bachelor's Diploma in Education, which latter certifies that the holder has specialized in the theory and art of education.

The general regulations of the College of Liberal Arts apply in the College of Education.

The course of study is distributed as follows:

English Language	9 hours
Classics and Mathematics, Mathematics and Science, or Science and Classics.....	18 hours
History or Economics.....	9 hours
Psychology (General and Educational).....	9 hours
History and Philosophy of Education.....	9 hours
Principles of Education.....	6 hours

Public Education: Its Organization and Management	3 hours
Principles and Practice of Teaching.....	9 hours
Public-School Program of Studies.....	3 hours
Principles of Economics, or additional Education or Psychology, or Sanitary Science, or Sociol- ogy	6 hours
Group Electives, Major and Minors (subjects the student expects to teach).....	75 hours
Students in this department should be particularly careful to take Psychology and History of Education in their sophomore year.	

GROUPS OF MAJORS AND MINORS

The purpose of the group elective requirement is to secure on the part of the teacher a thorough and systematic knowledge of the subject or subjects he proposes to teach. Usually the teacher in the secondary school is required to teach two or more subjects. Hence it is desirable that he should have a careful and extensive preparation in one subject and sufficient preparation for teaching at least the elementary steps of two or three additional subjects.

The groups of majors and minors are uniform with those of the College of Liberal Arts. See page 60.

TEACHERS APPOINTMENTS OFFICE

See page 48.

STATE DIPLOMAS

The 17th General Assembly enacted House Bill No. 423, in which Sections 4 and 7 provide as follows:

Sec. 4. The State Board of Education shall issue State diplomas upon application, without examination, to applicants who shall be graduates of colleges situated within the State of Colorado, which maintain a standard four-year course of collegiate work and require four standard years of high-school work or its equivalent for admission, and who shall also exhibit evidence satisfactory to the State Board of Education of good moral character, and who shall also present evidence to the State Board of Education that they have twenty-four months of successful teaching experience, and who shall also produce evidence satisfactory to the State Board of Education, of professional training equivalent to at least one-sixth of a stand-

ard four-years' college course in at least three of the following groups of subjects, one of which shall be Practice Teaching, to-wit:

- (1) General and Educational Psychology.
- (2) History of Education.
- (3) Science and Principles of Education.
- (4) Practice Teaching and Special Methods.
- (5) Organization and Management of Schools.
- (6) Philosophy, Sociology and Anthropology.

Sec. 7. State diplomas, granted under the provisions of this act, shall license the holders thereof to teach in the public schools of any county, city, town, or district in the State without the necessity of any other examination for a period of five years, unless sooner revoked by the State Board of Education, and at the expiration of said time, the same may be renewed for a like period of five years in the discretion of the State Board of Education, and at the expiration of this time, the same may be renewed for life upon presentation to the State Board of Education of satisfactory evidence of professional growth and efficiency; *Provided*, That the State Board of Education shall issue upon application, without examination, to those persons who possess the qualifications set forth in Section 4 of this act, experience in teaching alone excepted, a temporary, non-renewable certificate to teach for five years in the public schools of Colorado.

COLLEGE OF HOME ECONOMICS AND SOCIAL SERVICE

FACULTY

LAWRENCE W. COLE, Ph.D.,

Director of the College of Home Economics and Social Service.

The Faculty of the College of Home Economics and Social Service consists of Professors and Instructors in the College of Liberal Arts, School of Medicine, College of Pharmacy, and the Training School for Nurses, whose work contributes to the various courses.

REGULAR COURSES

FUNCTION

The courses of study in the College of Home Economics and Social Service are designed primarily for two classes of students: (a) Those who desire a four years' course in Household Science and Art in preparation for the management of a home or for teaching these subjects. A wise selection of electives permits this preparation to be so supplemented by Arts courses as to constitute a liberal education. (b) Those who desire to enter social service activities, such as belong to the work of charitable and corrective institutions, social settlements, etc.

ADMISSION AND FEES

Entrance requirements and fees for matriculation are those for admission to the College of Liberal Arts, but fees for materials used and breakage will be charged for certain laboratory courses in Home Economics. See pages 27, 34.

DEGREE AND CERTIFICATE

Those who complete satisfactorily a four years' course in Home Economics will receive the B.S. degree.

The course preparatory to social service may be so arranged that students will have preliminary training of considerable value even if obliged to drop the work at the close of the first year. A certificate showing the work done will be issued to students who complete either one or two years of the course.

COURSE IN HOME ECONOMICS

FRESHMAN YEAR

AUTUMN QUARTER

English	3
Inorganic Chemistry	5
*Garment Making	3
Electives	4
Physical Education	1
	<hr/>
	16

WINTER QUARTER

English	3
Inorganic Chemistry	5
*Garment Making	3
Electives	4
Physical Education	1
	<hr/>
	16

SPRING QUARTER

English	3
Inorganic Chemistry	5
*Elementary Foods	3
Electives	4
Physical Education	1
	<hr/>
	16

SOPHOMORE YEAR

AUTUMN QUARTER

Organic Chemistry	3
Selection and Preparation of Foods	3
Bacteriology	4
Psychology	3
Art and Design.....	3
Physical Education	1
	<hr/>
	17

WINTER QUARTER

Organic Chemistry	3
Selection and Preparation of Foods	3
†Economic Botany	3
Psychology	3
Art and Design.....	3
Physical Education	1
	<hr/>
	16

SPRING QUARTER

Selection and Preparation of Foods	3
Textiles	3
Psychology	3
Electives	5
Physical Education	1
	<hr/>
	16

* Required of students who do not offer household science or art for entrance.

† Economic Botany may be elected with advantage in the freshman year as it is a desirable introduction to Bacteriology.

JUNIOR YEAR

AUTUMN QUARTER		WINTER QUARTER	
The House	2	The House	2
Physiology	2	Physiology	2
Dressmaking	3	Dressmaking	3
Meal Planning and Serving....	3	Meal Planning and Serving....	3
Electives	5	Electives	5
	<u>15</u>		<u>15</u>

SPRING QUARTER

The House	2
Biochemistry	5
Dressmaking	3
Electives	5
	<u>15</u>

SENIOR YEAR

AUTUMN QUARTER		WINTER QUARTER	
Household Management	3	Household Management	3
*Catering	3	*Catering	3
Sociology	2	Sociology	2
Nutrition	4	Nutrition	4
Electives	3	Electives	3
	<u>15</u>		<u>15</u>

SPRING QUARTER

Household Management	2
*Catering	3
Sociology	2
Care of the Child.....	2
Electives	6
	<u>15</u>

* Elective.

COURSE PREPARATORY TO SOCIAL SERVICE

Students preparing themselves for social service work will find no trouble in selecting a course in consultation with the Director of the College of Home Economics. They will naturally choose their electives largely in economics, sociology and biology.

COMBINED COURSE FOR B.S. AND NURSE'S DIPLOMA (five years)

The work consists of three years in the College of Liberal Arts, followed by two years in the University of Colorado Hospital.

This course is offered as a contribution to the movement to place the standards of the nursing profession on a thoroughly high level, and to enlarge the possibilities for young women interested in this general line of work. Students who complete the course should find themselves generously equipped for various positions of responsibility in hospitals, asylums, city and state departments of health, school inspection work and similar fields.

Following is the work to be done in the College of Liberal Arts arranged for three academic years, each having three quarters.

Students preparing themselves to become school nurses should elect three hours of Education each quarter of their junior year.

FRESHMAN YEAR

English	9
Inorganic Chemistry	15
History or Economics	9
Physical Education	3
Electives	9
	<hr/>
	45

SOPHOMORE YEAR

Foreign Language	15
English Literature	6 or 9
Organic Chemistry	9
Biology	8
Sanitary Science and Public Health	2
Biochemistry	5
Physical Education	3
	<hr/>
	48 or 51

JUNIOR YEAR

Psychology	9
Social Problems	6
Nutrition	8
Anatomy, Physiology, and Hygiene	6
Bacteriology	4
Electives	15
	<hr/>
	48

COLLEGE OF ENGENIERING

FACULTY

GEORGE NORLIN, Ph.D., President of the University.

*MILO S. KETCHUM, C.E., Dean; Professor of Civil Engineering.

HERBERT S. EVANS, E.E., Dean; Professor of Electrical Engineering.

JOHN A. HUNTER, M.E., Professor of Mechanical Engineering.

WHITNEY C. HUNTINGTON, M.S., C.E., Professor of Civil Engineering.

CHARLES S. SPERRY, A.B., C.E., Professor of Engineering Mathematics.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

†RUSSELL D. GEORGE, A.M., Professor of Geology.

OLIVER C. LESTER, Ph.D., Dean of the Graduate School; Professor of Physics.

RALPH D. CRAWFORD, Ph.D., Professor of Mineralogy and Petrology.

*HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.

JAY W. WOODROW, Ph.D., Professor of Physics.

FRANK S. BAUER, M.E., Associate Professor of Mechanical Engineering.

FRANK G. ALLEN, B.S. (M.E.), Associate Professor of Engineering Drawing.

IVAN C. CRAWFORD, C.E., Associate Professor of Civil Engineering.

SIEBELT L. SIMMERING, M.E., Associate Professor of Steam and Gas Engineering.

W. CLINTON DUVAL, B.S. (E.E.), Associate Professor of Electrical Engineering.

JONTA BOEN MARCELLUS, B.S. (C.E.), Associate Professor of Civil Engineering.

OSCAR A. RANDOLPH, Ph.D., Associate Professor of Physics.

FRANK E. E. GERMANN, Dr. ès Sc., Associate Professor of Chemistry.

WALTER F. MALLORY, B.S. (M.E.), Assistant Professor of Mechanical Engineering.

* Resigned October 10, 1919.

† On leave of absence, Autumn Quarter, 1919-1920.

*PHILIP B. McDONALD, B.S., E.M., Assistant Professor of Engineering English.

‡CLARENCE L. ECKEL, B.S. (C.E.), Assistant Professor of Civil Engineering.

W. OTTO BIRK, A.M., Assistant Professor of Engineering English.

PAUL M. DEAN, Ph.D., Assistant Professor of Chemistry.

CHARLES M. McCORMICK, E.E., Instructor in Electrical Engineering.

**ALICE DOWNING HUNTER, A.M., Instructor in Engineering English.

WAYNE S. BEATTIE, B.S. (M.E.), Instructor in Mechanical Engineering.

WALDO E. BROCKWAY, B.S. (C.E.), Instructor in Civil Engineering.

WILLIAM F. BRUBAKER, B.S. (C.E.), Instructor in Engineering Drawing.

CHARLES A. HUTCHINSON, A.M., Instructor in Engineering Mathematics.

***ALBERT S. ROMIG, B.S. (M.E.), Instructor in Engineering Mathematics.

†ELLERT L. McGRATH, B.S. (C.E.), Instructor in Engineering Mathematics.

FRED R. DUNGAN, B.S., Instructor in Civil Engineering.

CHARLES R. BURLINGAME, B.S. (M.E.), Instructor in Mechanical Engineering.

MERVIN S. COOVER, E.E., Instructor in Electrical Engineering.

ROBERT H. CANFIELD, B.S. (C.E.), Instructor in Civil Engineering.

MURRAY F. SKINKER, B.S. (E.E.), Instructor in Engineering Mathematics.

HENRY MILLER, C.E., Instructor in Engineering Drawing.

PAUL HUNTZICKER, A.B., Instructor in Engineering Mathematics.

§CLAUDE N. SETTLES, A.B., Instructor in Engineering English.

§WALTER K. NELSON, B.S. (E.E.), Instructor in Engineering Mathematics.

¶ERHARDT A. FROESE, B.S. (Ch.E.), Instructor in Engineering Mathematics.

* Resigned June 23, 1919.

‡ Resigned October 10, 1919.

** Died January 5, 1920.

*** Died October 8, 1919.

† Resigned February 16, 1920.

§ Appointed January 14, 1920.

¶ Appointed February 16, 1920.

HORACE B. VAN VALKENBURGH, M.S., Instructor in Chemistry.

BENJAMIN D. CORNELL, A.M., Instructor in Chemistry.

MAURICE KATZMAN, M.D., Instructor in Bacteriology.

ARTHUR H. WARNER, A.B., Instructor in Physics.

HENRY A. PAGE, Assistant in Electrical Engineering.

DONALD H. TIPPETT, Assistant in Engineering English.

CHESTER B. ASHCRAFT, Assistant in Mechanical Engineering.

GENERAL STATEMENT

PURPOSE

The College of Engineering was established by the Regents in 1893. The aim in engineering education is to give a thorough training in science, mathematics, language, and mechanics, and in addition to give fundamental courses in engineering so that the graduate may be prepared to enter the profession of engineering.

The work of the first two years of all courses, with a few minor exceptions, is the same. It is aimed in these years to lay a broad foundation for the more specialized work of the last two years. To this end the work is largely theoretical in character, and comprises courses in mathematics, physics, mechanical drawing, rhetoric, and the elements of engineering subjects. Class-room and lecture work is supplemented wherever practicable by laboratory courses.

In the last two years the work is more specialized, and the fourth year is almost entirely devoted to technical work in the several branches of engineering.

REQUIREMENTS FOR ADMISSION

While the regular time for entrance to the College of Engineering is the opening of the first quarter, the subjects are repeated in such a manner that students entering at the opening of any quarter may proceed with their work without serious loss of time.

For details with reference to admission, see pages 26, 28.

ADMISSION TO ADVANCED STANDING

Students from other institutions will be admitted to any class not later than the autumn quarter of the senior year on passing examinations in the subjects given in the preceding years in the College of Engineering, or on presentation of satisfactory certificates, showing that the required work has been done in other technical schools. A certificate of honorable dismissal will also be required.

Graduates from other colleges will be admitted without examination, and allowed to pursue such courses as their previous work will permit.

By proper election of subjects in the collegiate course, such as sciences, mathematics, and languages, a graduate of the College of Liberal Arts can obtain his engineering degree in two years. Such a course affords a very broad general training, and is to be highly recommended. Students who expect to complete both the arts and engineering courses should consult the Dean of the College of Engineering before registering in the University.

DEGREES

Upon the satisfactory completion of the prescribed and elective work in any course, the degree Bachelor of Science in the course pursued, will be conferred.

For information regarding courses leading to the degrees Master of Science, Master of Science in Sanitary Engineering, Civil Engineer, Electrical Engineer, and Mechanical Engineer, see the Graduate School.

EQUIPMENT

BUILDINGS.

ENGINEERING I.—Engineering I is a laboratory building of fire-proof construction. The one-story sections contain the Materials Testing Laboratory, the Hydraulics Laboratory, the Road Materials Testing Laboratory, the Direct Current Laboratory, the Alternating Current Laboratory, the High Tension Laboratory, the Photometry Laboratory, the Standardizing Laboratory, and the Engineering Library. The one-story sections are lighted by means of a modified saw-tooth roof. The office of the Dean of Engineering, the offices, recitation and drawing rooms of the Electrical Engineering Department are on the first floor of the two-story section. The offices, recitation and drawing rooms of the Civil Engineering Department are on the second floor of the two-story section. The total floor space in this building is 28,000 square feet.

ENGINEERING II.—Engineering II is a shops and laboratory building. The one-story sections contain the wood shops, the foundry, and the mechanical engineering, and oil-testing laboratories. The one-story sections are lighted by means of a modified saw tooth roof. The two-story section contains the offices and recitation rooms of the Department of Mechanical Engineering. The total floor space in this building is 22,000 square feet.

ENGINEERING III.—Engineering III is used for freshmen and sophomore work. The departments of Engineering Drawing, Engineering Mathematics, and Engineering English have their offices and recitation or drawing rooms in this building. The Civil Engineering Department has its surveying rooms and the Mechanical Engineering Department its drawing rooms, in this building. The total floor space is 10,240 square feet.

CIVIL ENGINEERING EQUIPMENT.

The Department of Civil Engineering possesses an extensive equipment of surveying instruments of the various standard makes, consisting of engineer's transits, solar attachments, mining transits, compasses, engineer's levels, solar compasses, plane tables, a sextant, barometers, chains and tapes, as well as smaller instruments.

The department has two bridge extensometers, manufactured by the Wissler Instruments Works, together with other necessary equipment for the determination of stresses in bridge trusses due to static and moving loads.

Standard apparatus for determining color, turbidity, and other physical properties of water, has been added to the facilities for instruction in sanitary engineering.

The department also possesses an ample collection of drawings, blue prints, and photographs for use in design.

Cement Laboratory.

The Cement Laboratory is equipped with a 2,000-pound Fairbanks shot machine, a 2,000-pound Riehle cement machine, briquette molds, tanks, Gilmore needles, vicat apparatus, sieves, hot water tanks, specific gravity apparatus, slate slabs, sample barrels of cement, and other necessary apparatus.

Hydraulics Laboratory.

The equipment of the Hydraulics Laboratory consists of tanks supplied with various shaped notches and orifices for discharge instruments, pipes arranged for determining resistance to flow in same, standard orifices and tubes. The laboratory also contains a Venturi meter, water meters, piezometers, current meters, an A Doble 12-inch experimental water wheel equipped for experimental

work, three centrifugal pumps, Pitot's tubes, a hook gage, platform scales, hose, and various smaller pieces of hydraulic apparatus.

Materials Testing Laboratory.

The Materials Testing Laboratory is equipped with a 30,000-pound Olsen testing machine; a 100,000-pound Olsen testing machine; a 200,000-pound Riehle testing machine that will test a 16-foot beam and an 8-foot column; extensometers; compressometers; a 50,000-in.-lb. Olsen torsion testing machine; a stone saw; and miscellaneous small tools and apparatus necessary for making commercial tests of iron, steel, brick, stone and wood. The laboratory is equipped with a brick rattler, and all other equipment necessary for making commercial tests of paving brick. The equipment of the cement laboratory is available for work in testing cements, mortars, and concrete.

Road Materials Testing Laboratory.

The equipment of the Road Materials Testing Laboratory consists of a Page impact machine for testing toughness of rock; a Page impact machine for cementation test; a two-cylinder abrasion machine, Deval type; a Dorry hardness machine; a grinding lap; drying oven; drill press; diamond stone saw; a ball mill; and other minor equipment for making commercial tests of road materials.

ELECTRICAL ENGINEERING LABORATORIES.

The Electrical Engineering laboratories are well equipped for the study of direct and alternating current appliances, electrical testing, and the investigation of problems concerning the design, installation and operation of electrical apparatus.

Dynamo Laboratories.

The laboratories include in their equipment twelve complete motor-generator sets for testing purposes. These twelve sets range in capacity from one to fifty horse-power and include both direct current and alternating current motors and generators of various types and designs; some are direct connected, and some are belt connected. There are three double current generators that may be used as single-phase or three-phase synchronous converters, and also a regulating-pole synchronous converter with special features. In addition there is a large amount of miscellaneous equipment such

as: a special convertible laboratory set; railway motors; Brush arc-lighting dynamos, etc. Switchboards with plugs and jacks, and arranged for trunking between different laboratories, are provided in each laboratory. Control devices and apparatus are provided for all equipment. Prony brakes and a cradle dynamometer are provided for individual tests. The University power plant is available for testing purposes and affords special opportunities for commercial and operation tests.

Transformer Laboratory.

The transformer equipment comprises four three-phase banks of transformers for various capacities; two sets of transformers for two- to three-phase transformation, or vice versa; an auto-transformer of special design, giving wide range of voltages; a twelve light constant current transformer; a Cooper-Hewitt mercury-arc rectifier; and other transformers for special purposes.

Photometry Laboratory.

The four photometer rooms contain two Reichsanstalt photometers, one with a 475 centimeter scale, the other with a 250 centimeter scale, equipped with both Bunsen and Lummer Brodhun screens, a special integrating arc-light photometer, a 5-foot Ulbricht sphere, and a Macbeth illuminometer. The standards include an amylacetate (Hefner) lamp, and seasoned carbon and tungsten incandescent lamps certified by the United States Bureau of Standards. The necessary accessories for exact photometric work are included in the equipment.

Telephone Apparatus.

For the use of classes in telephony, there is a complete Telephone Laboratory equipment, consisting of a number of different types of subscribers' sets, together with the necessary central office apparatus and protective devices.

High Frequency and High Potential Equipment.

For the investigation of high tension and high frequency phenomena, the Transformer Laboratory is equipped with a 22,000 volt transformer, a 50,000 volt special testing transformer, a large condenser, and a number of Tesla coils of special construction.

In addition to the high frequency and high potential equipment described above, there is a three-unit oscillograph with a full com-

plement of accessories for observing and photographing the actual wave shapes of alternating voltage, current, and flux. A one hundred and fifty mile adjustable artificial transmission line, equivalent to one phase of the Colorado Power Company's line is another piece of special apparatus in this laboratory.

Electrical Standardizing Laboratory.

The department has a very complete equipment for testing and calibrating all types of electrical measuring instruments for both alternating and direct currents.

Besides the standards, which are among the best obtainable, the equipment comprises a number of motor-generator sets from which may be obtained a wide range of voltages and currents, and all commercial frequencies and power factors.

Measuring Instruments.

The department possesses a large equipment of wattmeters, alternating and direct current ammeters and voltmeters of various ranges and representative makes.

A great variety of integrating wattmeters are used for experimental purposes, and synchronizers, water rheostats, two-lamp banks, a transformer bank and other accessories are provided for testing work.

Commercial Testing.

The University power plant affords the students an excellent opportunity for making commercial tests. The equipment consists of a 150-K.W. three-phase slow speed unit; a 75-K.W. three-phase direct connected alternator with belted exciter; a 35-K.W. direct current compound generator, direct connected; a 25-K.W. steam turbine exciter unit; a 35-K.W. motor generator set; and a thoroughly modern ten-panel switchboard.

MECHANICAL ENGINEERING LABORATORY.

The Mechanical Engineering Laboratory contains necessary apparatus for testing viscosity and other qualities of lubricating oils; calorimeters for determining dryness and heat of steam; injectors and water meters for measuring water for boiler trials; thermometers and pyrometers for measurement of temperatures; Bunte gas burrettes and chemical reagents for tests of chimney flue gases;

anemometers for study of heating and ventilation; calorimeters for the determination of the value of fuels; indicators, reducing motions and planimeters for indicator tests of engines; hydrometers for determinations of specific gravity of liquids; micrometers and extensometers for fine measurements; gauges and manometers for pressures; a Westinghouse Air Brake outfit; an hydraulic ram, engines, pumps, condensers, and a two-ton ice machine. The University power plant and heating system, consisting of three boilers of 600 horse-power capacity, a 225 horse-power Murry Corliss engine, a 125 horse-power Chuse engine, a Leyner air compressor, a 50 horse-power Harrisburg engine, several blowers and pumps furnish opportunities for efficiency tests of boilers with different fuels and of the engines at varying loads.

Workshop Equipment.

The forge equipment consists of the latest type of Buffalo down-draft forges, each with anvil, providing accommodations for twenty students at each session, and also accessory tools for forging, welding, and tool dressing.

The foundry contains a Newton cupola furnace, capable of melting two tons of iron per hour, ladles, flasks, and all necessary small tools, and a stock of patterns. The forges and cupola are served by three centrifugal fans, which are operated by a ten horse-power electrical motor.

The machine shop is equipped with iron workers' benches, planers, a milling machine, speed lathes, engine lathes, a shaper, grindstones, and other tools.

The wood shops occupy two rooms on the first floor, each shop has its own tool room, and is well equipped with benches and speed lathes for fitting and turning work.

GENERAL ENGINEERING DRAWING.

The apparatus for instruction and practice consists of over one hundred models, two folding plane frames of special design, a pantograph, a universal drafting machine, and numerous special drawing instruments. Besides the usual apparatus of frames, bath, and dark room for sun blue printing, the department has an electric blue printing machine.

ENGINEERING LIBRARY.

In addition to books on engineering and scientific subjects in the

main University Library there is an engineering library located in Engineering I. The Engineering Library contains files of bound volumes of proceedings and transactions of engineering societies, and of most of the best known engineering magazines in America and Europe. A trained librarian is in charge of the Engineering Library, which is operated as a branch of the main library of the University. The files of proceedings of societies and magazines are made more usable through a very complete set of indexes to engineering literature. The library also contains the standard encyclopedias and dictionaries, as well as numerous standard reference books.

LABORATORY FEES (FOR MATERIAL)

A laboratory fee of \$2.00 per term hour is charged in all laboratory, shop and field courses in all departments except Engineering Chemistry and Engineering Physics.

The laboratory fees in Engineering Chemistry are \$2.75 for each term hour in the laboratory in Engineering Chemistry 2 and 3, and \$1.75 per term hour for each laboratory hour in all other courses in Engineering Chemistry.

The laboratory fees in Engineering Physics are \$3.00 per term hour in Engineering Physics 51, and \$2.00 per term hour in all other courses.

A fee of \$1.00 per term hour is charged in all drawing and design courses.

The number of term hours for which fees are charged is shown by numbers in parentheses in the schedule of courses.

For fees in Geology, see page 35.

LIBRARY FEE

A library fee of \$1.50 per quarter is charged each student registered in the College of Engineering. The library fees are administered by a committee of the Engineering Faculty and are used for the purchase of books and periodicals for the Engineering Library.

ENGINEERING COURSES

CIVIL ENGINEERING

This course is especially arranged to meet the needs of the Irrigation, Highway, Structural, and Railway Engineer; and has majors in hydraulics, construction of dams, construction of roads and pavements, location of roads and railroads, location of reservoirs and canals, water power engineering, irrigation engineering, structural engineering, and railroad engineering. While the work is made practical by giving the student a large amount of practice in the field, the drafting and computing room, and the laboratory, the main object is the development of the mental faculties and judgment of the student.

The general studies and surveying of the first two years lead up to courses in theoretical and applied mechanics, railroads, roads and pavements, hydraulics, graphic statics and geodesy in the junior year, followed in the senior year by courses in bridge design, industrial building design, design of mill buildings and bins, water supply, sewerage, masonry construction, reinforced concrete construction, irrigation engineering, and railroad engineering.

Besides instruction in strictly engineering subjects, courses are given in economics, rhetoric, geology, bacteriology, and the law of contracts.

Numerous inspection trips are made during the junior and senior years, to give the students an opportunity to get in touch with the practical side of engineering work.

ELECTRICAL ENGINEERING

It is the aim of the Department of Electrical Engineering to provide thorough theoretical and practical training for those desirous of engaging in the various applications of electricity.

Electrical engineering work proper begins in the junior year with courses in electricity and magnetism, theory and method of electrical measurements with direct applications to the theory, design and operation of continuous current apparatus.

The senior year is largely devoted to a study of the design and operation of alternating current apparatus, such as generators, trans-

formers, synchronous and induction motors, rotary converters and transformers; distribution and transmission, electric traction and power plant construction and operation, lighting and metering; the telephone and telegraph; and other applications of electricity to the arts. The design of apparatus is studied by lectures and solution of problems in the drawing room.

Particular attention is given throughout to the proper correlation of classroom study to laboratory work. To this end courses are given in the testing and handling of the various types of direct and alternating current machinery. In connection with the work in lighting and illumination, complete tests are made of the various types of electric lamps. Frequent inspection trips are made to the numerous large power plants in the vicinity, and every opportunity is taken to acquaint the student with the engineering problems of his profession.

MECHANICAL ENGINEERING

This course is intended to train students along the broad lines of Mechanical Engineering. In the second year the students are given practical instruction in elementary studies of the kinematics of machinery and of machine design.

In the junior and senior years the course includes the theory of machine design, valve-gear movements, applied mechanics of both building structures and moving machinery; thermodynamics, including the study of steam, gasoline, and refrigerator engines; the theory of direct current electricity, and practical instruction in designing specific machine and power plants; shop-work; thorough instruction in the electrical and mechanical laboratories, in efficiency tests of engines, boilers, motors, blowers, pumps, calorimeters, injectors, etc., as well as general tests of boiler feed waters, lubricating oils, cements, flue gases, steam, fuels, steel and iron. Students are also given instruction in conducting practical duty trials of power plants.

CHEMICAL ENGINEERING

The great development in the United States during the last decade, of chemical and metallurgical industries, such as the manufacture of alkalis, fertilizers, beet sugar, Portland cement, by-products from coal and petroleum, acids from sulphide ores, plate

glass, pottery, etc., where a combined knowledge of mechanical engineering and chemistry is needed for competent supervision, has suggested the inauguration of this course. The course in Chemical Engineering is designed to give a major in chemistry and to give fundamental training in engineering. Students taking this course pursue courses in chemistry, physics, mathematics, and mechanics for the first two years; in the junior and senior years they are given special instruction in designing chemical machinery and in chemical analysis of fuels, gases, steel and iron, electrometallurgy, etc.

REQUIREMENTS FOR DEGREE BACHELOR OF SCIENCE IN ENGINEERING

CIVIL ENGINEERING

FRESHMAN YEAR*

AUTUMN QUARTER

Algebra (Eng. Math. 1a)†..	3
Trigonometry (Eng. Math. 2a)	2
Mechanical Drawing (Draw. 1)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 1).....	3
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	16

WINTER QUARTER

Algebra (Eng. Math. 1b)..	3
Trigonometry (Eng. Math. 2b)	2
Mechanical Drawing (Draw. 2)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 2).....	3
	<hr/>
	16

SPRING QUARTER

Analytic Geometry (Eng. Math. 3)	5
Descriptive Geometry (Draw. 3)	4 (2)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 3)	3
Engineering Literature (English 4)	2
	<hr/>
	18

SOPHOMORE YEAR

AUTUMN QUARTER

Calculus (Eng. Math. 4a)†.	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Plane Surveying (C.E. 1)..	5 (3)
Roads and Pavements (C.E. 33)	4 (1)
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	18

WINTER QUARTER

Calculus (Eng. Math. 4b)..	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Surveying and Mapping (C.E. 2)	2 (2)
Railroad Curves (C.E. 5)..	2 (1)
Engineering Materials (C.E. 14)	3
Timber Structures (C.E. 15)	2 (1)
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	18

SPRING QUARTER

Calculus (Eng. Math. 4c)..	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Higher Surveying (C.E. 3)..	4 (3)
Technical Mechanics—Statics (C.E. 6)	3
Architectural Construction (C.E. 21)	2 (1)
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	18

* All freshman students are required to attend technical lectures given each second week during the year.

† These references are to the description of courses. Figures in parentheses indicate the number of three-hour laboratory, drafting, or field periods.

JUNIOR YEAR

AUTUMN QUARTER

Mechanics of Materials (C.E. 8)	5
Technical Mechanics—Dy- namics (C.E. 7)	3
Geology (Geol. 3)	3 (1)
Railroad Engineering (C.E. 34)	5 (2)
Materials Testing Labora- tory (C.E. 9)	2 (2)
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	18

WINTER QUARTER

Algebraic and Graphic Statics (C.E. 17)	5 (2)
Hydraulics (C.E. 11)	3
Geology (Geol. 3)	4 (1)
Technical Writing (Eng- lish 5)	2
Railroad Maintenance (C.E. 35)	2
Structural Details (C.E. 16)	2 (2)
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	18

SPRING QUARTER

Reinforced Concrete (C.E. 29)	3
Structural Analysis (C.E. 18)	4 (3)
Geodesy and Least Squares (Eng. Math. 6)	4 (1)
Steam Engines and Boilers (M.E. 5)	3
Bacteriology (C.E. 37)	3
Hydraulics Laboratory (C.E. 12)	1 (1)
	<hr/>
	18

SENIOR YEAR

AUTUMN QUARTER

Masonry Construction (C.E. 22)	3
Foundations (C.E. 32)	2
Water Supply (C.E. 38)	3
Structural Design (C.E. 23)	5 (5)
Engineering Economics (C.E. 36)	2
Bridge Design (C.E. 19)	3
	<hr/>
	18

WINTER QUARTER

Industrial Buildings (C.E. 22)	3
Advanced Bridge Design (C.E. 20)	3 (3)
Sewerage (C.E. 40)	3
Water Power Engineering (C.E. 39)	2
Engineering Contracts (C.E. 44)	3
Higher Structures (C.E. 26)	4 (2)
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	18

SPRING QUARTER

Higher Structures (C.E. 27)	4 (2)
C.E. Seminar (C.E. 46)	1
Irrigation Engineering (C.E. 42)	3
Engineering Administration (C.E. 45)	3
Municipal and Sanitary De- sign (C.E. 41)	3 (3)
Estimates and Costs (C.E. 43)	2
	<hr/>
	16

ELECTRICAL ENGINEERING

FRESHMAN YEAR*

AUTUMN QUARTER

Algebra (Eng. Math. 1a)†..	3
Trigonometry (Eng. Math. 2a)	2
Mechanical Drawing (Draw. 1)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 1).....	3
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	16

WINTER QUARTER

Algebra (Eng. Math. 1b)..	3
Trigonometry (Eng. Math. 2b)	2
Mechanical Drawing (Draw. 2)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 2).....	3
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	16

SPRING QUARTER

Analytic Geometry (Eng. Math. 3)	5
Descriptive Geometry (Draw. 3)	4 (2)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 3).....	3
Engineering Literature (English 4)	2
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	18

SOPHOMORE YEAR

AUTUMN QUARTER

Calculus (Eng. Math. 4a)†.	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Engineering Materials (E.E. 17)	3
Machine Shop (Shop 9)....	2 (2)
Forging (Shop 4).....	2 (2)
Electric and Magnetic Circuits (E.E. 11).....	2
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	18

WINTER QUARTER

Calculus (Eng. Math. 4b)..	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Kinematics (M.E. 1).....	3
Wood Working (Shop 1)...	2 (2)
Foundry (Shop 6).....	2 (2)
Electric and Magnetic Circuits (E.E. 12).....	2
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	18

SPRING QUARTER

Calculus (Eng. Math. 4c)..	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Analytical Mechanics—Statics (Eng. Phys. 52)..	3
Machine Drawing (M.E. 40)	5 (3)
Electric and Magnetic Circuits (E.E. 30).....	1 (1)
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	18

* All freshman students are required to attend technical lectures given each second week during the year.

† These references are to the description of courses. Figures in parentheses indicate the number of three-hour laboratory, drafting, or field periods.

JUNIOR YEAR

AUTUMN QUARTER

Electrical Machinery (E.E. 1)	3
Direct Current Laboratory (E.E. 31)	2 (2)
Electrical Measurements (Eng. Phys. 55)	3 (3)
Illumination and Photometry (E.E. 10)	3
Theory of Electricity and Magnetism (Eng. Phys. 54a)	2
Technical Writing (English 5)	2
Analytical Mechanics—Dy- namics (Eng. Phys. 53) ..	3
	<hr/> 18

WINTER QUARTER

Electrical Machinery (E.E. 2)	3
M. E. Laboratory (M.E. 30)	2 (2)
Photometry Laboratory (E.E. 32)	2 (2)
Hydraulics (C.E. 11)	3
Thermodynamics (M.E. 6) ..	2
Theory of Electricity and Magnetism (Eng. Phys. 54b)	3
Steam Engines and Boilers (M.E. 5)	3
	<hr/> 18

SPRING QUARTER

Electrical Machinery (E.E. 3)	3
Direct Current Laboratory (E.E. 32)	2 (2)
Mechanics of Materials (C.E. 8)	5
Materials Testing Labora- tory (C.E. 9)	2 (2)
Thermodynamics (M.E. 7) ..	3
Machine Design (M.E. 44) ..	3 (2)
	<hr/> 18

SENIOR YEAR

AUTUMN QUARTER

Theory of Alternating Cur- rents (E.E. 4)	3
Steam Engine Laboratory (M.E. 32)	3 (3)
Electrical Railway Engineer- ing (E.E. 21)	2
Alternating Current Lab- oratory (E.E. 34)	2 (2)
Telephone Engineering (E.E. 7)	3
Central Station Design (E.E. 40)	2 (1)
Organization and Manage- ment (E.E. 18)	3
	<hr/> 18

WINTER QUARTER

Theory of Alternating Currents (E.E. 5)	3
Industrial Buildings (C.E. 28)	3 (1)
Engineering Contracts (C.E. 44)	3
Alternating Current Lab- oratory (E.E. 35)	2 (2)
Transmission and Distribu- tion (E.E. 8)	2
Central Station Design (E.E. 41)	3 (3)
Electric Railway Engi- neering (E.E. 22)	2
	<hr/> 18

SPRING QUARTER

Theory of Alternating Currents (E.E. 6)	3
Surveying (C.E. 4)	3 (2)
E.E. Seminar (E.E. 16)	1
Experimental Electrical Engineering (E.E. 36) ...	3 (2)
Central Station Design (E.E. 42)	2 (2)
Electric Railway Engineer- ing (E.E. 23)	2
Transmission and Distribu- tion (E.E. 9)	2
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MECHANICAL ENGINEERING

FRESHMAN YEAR*

AUTUMN QUARTER

Algebra (Eng. Math. 1a)†..	3
Trigonometry (Eng. Math. 2a)	2
Mechanical Drawing (Draw. 1)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 1).....	3
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	16

WINTER QUARTER

Algebra (Eng. Math. 1b)..	3
Trigonometry (Eng. Math. 2b)	2
Mechanical Drawing (Draw. 2)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 2).....	3
	<hr/>
	16

SPRING QUARTER

Analytic Geometry (Eng. Math. 3)	5
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Descriptive Geometry (Draw. 3)	4 (2)
Rhetoric (English 3).....	3
Engineering Literature (English 4)	2
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	18

SOPHOMORE YEAR

AUTUMN QUARTER

Calculus (Eng. Math. 4a)†.	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Kinematics (M.E. 1).....	3
Engineering Materials (M.E. 2)	4
Wood Working (Shop 1)...	2 (2)
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	18

WINTER QUARTER

Calculus (Eng. Math. 4b)..	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Machine Drawing (M.E. 40)	5 (3)
Heat Treatment of Steel (M.E. 4)	3
Pattern Making (Shop 2)...	1 (1)
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	18

SPRING QUARTER

Calculus (Eng. Math. 4c)..	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Technical Mechanics—Statics (C.E. 6).....	3
Forging (Shop 3).....	3 (2)
Foundry (Shop 5).....	3 (2)
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JUNIOR YEAR

AUTUMN QUARTER

Mechanics of Materials (C.E. 8)	5
Materials Testing Lab- oratory (C.E. 9).....	2 (2)
Steam Engines and Boilers (M.E. 5)	3
Technical Mechanics— Dynamics (C.E. 7).....	3
Machine Design (M.E. 41).	5 (3)

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WINTER QUARTER

Electrical Machinery (E.E. 13)	3
Technical Writing (English 5)	2
Valve Gears (M.E. 15)....	2
Thermodynamics (M.E. 8)...	4
Machine Design (M.E. 42)...	4 (3)
Machine Shop (Shop 7)...	3 (2)

 18

SPRING QUARTER

Electrical Machinery (E.E. 14)	4
Hydraulics (C.E. 11).....	3
E. E. Laboratory (E.E. 37).....	1 (1)
Thermodynamics (M.E. 9)...	3
Mechanics of Machinery (M.E. 23)	3
Machine Shop (Shop 8)...	2 (2)
M. E. Laboratory (M.E. 30)	2 (2)

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SENIOR YEAR

AUTUMN QUARTER

Industrial Buildings (C.E. 28)	3 (1)
Steam Engine and Boiler Design (M.E. 45).....	3 (2)
Automobiles and Gas Engines (M.E. 12).....	3
Compressed Air (M.E. 18)...	2
Principles of Aviation (M.E. 16)	2
Works Management (M.E. 14)	3
Steam Engine Laboratory (M.E. 31)	2 (2)

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WINTER QUARTER

Engineering Contracts (C.E. 44)	3
Refrigeration (M.E. 19)...	3
Steam Engine Laboratory (M.E. 33)	3 (3)
Hydraulic Machinery (M.E. 13)	2
Steam Engine and Boiler Design (M.E. 46).....	3 (2)
M.E. Seminar (M.E. 21)...	1
Locomotives and Air Brakes (M.E. 11)	3

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SPRING QUARTER

Surveying (C.E. 4).....	3 (2)
Power Plant Design (M.E. 47)	5 (3)
Steam Turbines (M.E. 17)...	2
Heating and Ventilation (M.E. 10)	3
Railway Operation and Signals (M.E. 20).....	2
M.E. Seminar (M.E. 22)...	1

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CHEMICAL ENGINEERING

FRESHMAN YEAR*

AUTUMN QUARTER

Algebra (Eng. Math. 1a)†.	3
Trigonometry (Eng. Math. 2a)	2
Mechanical Drawing (Draw. 1)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 1).....	3
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	16

WINTER QUARTER

Algebra (Eng. Math. 1b)...	3
Trigonometry (Eng. Math. 2b)	2
Mechanical Drawing (Draw. 2)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 2).....	3
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	16

SPRING QUARTER

Analytic Geometry (Eng. Math. 3)	5
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Descriptive Geometry (Draw. 3)	4 (2)
Rhetoric (English 3).....	3
Engineering Literature (English 4)	2
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	18

SOPHOMORE YEAR

AUTUMN QUARTER

Calculus (Eng. Math. 4a)†.	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Engineering Materials (M.E. 3)	2
Qualitative Analysis (Eng. Chem. 3)	3 (2)
Quantitative Analysis (Eng. Chem. 4)	4 (3)
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	18

WINTER QUARTER

Calculus (Eng. Math. 4b)...	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Kinematics (M.E. 1).....	3
Qualitative Analysis (Eng. Chem. 3)	3 (2)
Quantitative Analysis (Eng. Chem. 4)	4 (3)
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SPRING QUARTER

Calculus (Eng. Math. 4c)...	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Technical Mechanics—Statics (C.E. 6)	3
Qualitative Analysis (Eng. Chem. 3)	3 (2)
Quantitative Analysis (Eng. Chem. 4)	4 (3)
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† These references are to the description of courses. Figures in parentheses indicate the number of three-hour laboratory, drafting, or field periods.

JUNIOR YEAR

AUTUMN QUARTER

Steam Engines and Boilers (M.E. 5)	3
Technical Mechanics— Dynamics (C.E. 7).....	3
Technical Writing (English 5)	2
M.E. Laboratory (M.E. 30)	2 (2)
Machine Drawing (M.E. 40)	5 (3)
Organic Chemistry Lectures (Eng. Chem. 5).....	3
	<hr/> 18

WINTER QUARTER

Mechanics of Materials (C.E. 8)	5
Materials Testing Lab- oratory (C.E. 9).....	2 (2)
Thermodynamics (M.E. 6).	2
Electrical Machinery (E.E. 13)	3
Machine Design (M.E. 44).	3 (2)
Organic Chemistry Lectures (Eng. Chem. 5).....	3
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SPRING QUARTER

Electrical Machinery (E.E. 14)	4
E.E. Laboratory (E.E. 37)..	1 (1)
Thermodynamics (M.E. 7).	3
Heat Treatment of Steel (M.E. 4)	3
Organic Chemistry Lectures (Eng. Chem. 5).....	3
Organic Preparations (Eng. Chem. 6)	3 (3)
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SENIOR YEAR

AUTUMN QUARTER

Hydraulics (C.E. 11).....	3
Works Management (M.E. 14)	3
Surveying (C.E. 4).....	3 (2)
Steam Engine Laboratory (M.E. 31)	2 (2)
Physical Chemistry Lectures (Eng. Chem. 7).....	3
Ch.E. Seminar (M.E. 25)..	1
Industrial Buildings (C.E. 28)	3 (1)
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WINTER QUARTER

Engineering Contracts (C.E. 44)	3
Physical Chemistry Lectures (Eng. Chem. 7).....	3
Physical Chemistry Lab- oratory (Eng. Chem. 8).	2 (2)
Chemical Engineering Design (M.E. 48).....	3 (2)
Chemical Engineering Materials (M.E. 26).....	2
Chemistry of Materials (Eng. Chem. 9).....	1 (1)
Refrigeration (M.E. 19)...	3
	<hr/> 17

SPRING QUARTER

Power Plant Efficiency (M.E. 24)	2
General Shop Work (Shop 10)	1 (1)
Physical Chemistry Lectures (Eng. Chem. 7).....	3
Physical Chemistry Lab- oratory (Eng. Chem. 8).	2 (2)
Industrial Chemistry (Eng. Chem. 11)	4
Chemistry of Materials (Eng. Chem. 10).....	2 (2)
Steam Turbines (M.E. 17).	2
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DESCRIPTION OF COURSES

CIVIL ENGINEERING

PROFESSOR HUNTINGTON, ASSOCIATE PROFESSORS CRAWFORD AND MARCELLUS, AND MR. BROCKWAY, MR. DUNGAN, AND MR. CANFIELD:

1. PLANE SURVEYING. Autumn quarter. Two hours lecture, nine hours in field. 5 h.

Instruction is given in the theory of surveying and in the theory, use and adjustment of the compass, level, transit, plane table and sextant. The field work includes pacing and chaining surveys; compass and transit traverses; measurement of angles by repetition; differential, profile, and contour leveling; traverses with the plane-table, etc. Maps and reports are required. Considerable time is given to a study of U. S. Land Survey methods, and to court decisions relating to relocation of corners, lines, and boundaries.

Textbook: Pence and Ketchum's Surveying Manual.

Prerequisites: Eng. Math. 1 and 2, and Draw. 1.

2. SURVEYING AND MAPPING. Winter quarter. Six hours in drawing room. 2 h.

This course covers the calculations of surveys and the preparation of maps and profiles. Calculations are made for the triangulation system of a topographic survey. Some time is given to measurements of angles by repetition and to measurements of base lines and to precise leveling.

Textbooks: Pence and Ketchum's Surveying Manual, Johnson and Smith's Theory and Practice of Surveying, and notes by the Department.

Prerequisite: C.E. 1.

3. HIGHER SURVEYING. Spring quarter. One hour lecture, nine hours in field. 4 h.

In this course the different methods of making topographic surveys are discussed. A complete topographic survey based

on a carefully designed triangulation system is made. The calculations are made and a map is drawn.

Textbooks: Pence and Ketchum's Surveying Manual, Johnson and Smith's Theory and Practice of Surveying, and notes by the Department.

Prerequisites: C.E. 1 and 2.

4. SURVEYING. Autumn or spring quarter. One hour lecture, six hours in field. 3 h.

A brief course in surveying and in the theory and use of the level, transit, and other instruments, for electrical, mechanical, and chemical engineering students. The work covers problems in pacing, chaining, compass and transit surveys, profile and contour leveling, laying out buildings, etc.

Textbook: Pence and Ketchum's Surveying Manual.

Prerequisites: Eng. Math. 1, 2 and 3, Draw. 1, and Eng. Phys. 50 and 51.

5. RAILROAD CURVES. Winter quarter. One hour lecture, three hours in field. 2 h.

A study is made of simple, compound, reversed, parabolic curves, and the transition spiral. Instruction consists of recitations, problems, and field locations.

Textbook: Allen's Railroad Curves and Earthwork.

Prerequisite: C.E. 1 and to be taken with C.E. 2.

6. TECHNICAL MECHANICS—STATICS. Spring quarter. 3 h.

The mechanics of engineering rather than of astronomy and physics is here considered. Particular attention is given to developing and fixing fundamental concepts of equilibrium and motion as applied to engineering problems. Both algebraic and graphic methods of the calculation of problems are considered. This course is followed by C.E. 7.

Textbook: Poorman's Applied Mechanics.

Prerequisites: Eng. Math. 4a and 4b, and Eng. Phys. 50, to be taken with Eng. Math. 4c.

7. TECHNICAL MECHANICS—DYNAMICS. Autumn quarter. 3 h.

A continuation of C.E. 6.

Textbook: Poorman's Applied Mechanics.

Prerequisites: Eng. Math. 4 and C.E. 6.

8. MECHANICS OF MATERIALS. Any quarter. 5 h.

This course covers the elasticity of materials; stress and strain; working stresses; resistance of pipes and riveted joints; bending moment; resisting moment; shear; elastic curve of beams; torsion; internal stress; fatigue of metals; etc.

Textbook: Boyd's Strength of Materials.

Prerequisites: Eng. Math. 4, and Eng. Phys. 52 and 53, or C.E. 6 and to be taken with C.E. 7.

9. MATERIALS TESTING LABORATORY. Any quarter. Six hours in laboratory. 2 h.

Experiments on strength of steel, wrought and cast iron; shear on rivets; strength of wood; and tensile and compressive strength of Portland cement, brick and building stone.

Prerequisites: C.E. 8, or to be taken with C.E. 8.

10. ADVANCED MECHANICS OF MATERIALS. Elective. 3 h.

This course covers an extended discussion of combined stresses, resilience, stresses in beams, deflection of beams, torsion, pipes and cylinders, curved bars, and arches.

Textbook: Morley's Strength of Materials.

Prerequisites: C.E. 8 and 17.

11. HYDRAULICS. Any quarter. 3 h.

This course covers the weight and pressure of water; head; center of pressure, velocity and discharge through orifices, tubes, nozzles, pipes, hose, weirs, conduits, canals, rivers; meters and measurements; motors, turbines, and water wheels.

Textbook: Daugherty's Hydraulics.

Prerequisites: Eng. Math. 4 and Eng. Phys. 52 and 53, or C.E. 6 and 7.

12. HYDRAULICS LABORATORY. Spring quarter. Three hours in laboratory. 1 h.

Experiments on flow of water over weirs, through orifices, in open channels and pipes; tests of pumps; reaction and turbine water wheels, etc.; determination of coefficients of friction in hose and pipes.

Prerequisites: C.E. 7 and to be taken with C.E. 11.

13. ADVANCED HYDRAULICS. 3 h. Elective.

An extended study of flow in pipes, nozzles, conduits, canals and rivers; of velocity and discharge; water hammer; dynamic

action of streams; turbine and pump theory; hydraulic rams, lifts, hoists and meters.

Textbook: Gibson's Hydraulics and Its Application.

Prerequisite: C.E. 11.

14. **ENGINEERING MATERIALS.** Winter quarter. 3 h.

A study is made of the properties and requirements for materials used in engineering construction, the effect of different methods of manufacture upon the quality of the material, and specifications and standard tests for materials.

Textbook: Mill's Materials of Engineering, and notes.

Prerequisites: Eng. Math. 3 and to be taken with Eng. Phys. 50.

15. **TIMBER STRUCTURES.** Winter quarter. One hour lecture, three hours in drawing room. 2 h.

A study of the joints and fastenings used in timber framing, and the details of timber structures. Design and detail drawings of timber trusses, trestles and timber details.

Textbook: Jacoby's Structural Details.

Prerequisites: Draw. 1, Eng. Math. 1 and 2, and C.E. 14.

16. **STRUCTURAL DETAILS.** Winter quarter. Six hours in drawing room. 2 h.

Preparation of detail drawings of steel beams, columns, roof trusses and bridges.

Textbook: Ketchum's Structural Engineers' Handbook.

Prerequisite: C.E. 15.

17. **ALGEBRAIC AND GRAPHIC STATICS.** Winter quarter. Three hours lecture, six hours in drawing room. 5 h.

The elements of statics by algebraic and graphic methods, and stresses in simple roof trusses and bridges.

Textbook: Ketchum's Design of Steel Mill Buildings.

Prerequisites: C.E. 6, 7, and 8.

18. **STRUCTURAL ANALYSIS.** Spring quarter. One hour lecture, nine hours in drawing room. 4 h.

This course includes the calculations of stresses in bridges and girders loaded with uniform and concentrated loads, by algebraic and graphic methods; stresses in portals, pins, and other details preliminary to bridge design. Each student calcu-

lates the stresses in, and investigates the efficiencies of, the members of a highway bridge.

Textbook: Ketchum's Design of Highway Bridges.

Prerequisite: C.E. 17.

19. BRIDGE DESIGN. Autumn quarter. 3 h.

A study of principles of design of steel plate girders and truss bridges.

Textbook: Johnson, Bryan and Turneaure's Framed Structures, Part III.

Prerequisite: C.E. 18.

20. ADVANCED BRIDGE DESIGN. Winter quarter. Nine hours in drawing room. 3 h.

The detailed design of a railway truss bridge and a railway plate girder bridge, including the making of complete detail drawings and an estimate of weight and cost.

Textbooks: Ketchum's Structural Engineer's Handbook, and Johnson, Bryan and Turneaure's Modern Framed Structures, Part III.

Prerequisite: C.E. 19.

21. ARCHITECTURAL CONSTRUCTION. Spring quarter. One hour lecture, three hours in drawing room. 2 h.

A study of the details of architectural construction, including working drawings, materials, and details of building construction.

Prerequisites: C.E. 14 and 15.

22. INDUSTRIAL BUILDINGS. Winter quarter. 3 h.

A study of buildings of steel, concrete, and slow burning construction and of elevated tanks, chimneys, grain elevators and bins.

Textbooks: Ketchum's Design of Steel Mill Buildings, Structural Engineer's Handbook, and Walls, Bins and Grain Elevators, Hool and Johnson's Concrete Engineer's Handbook, and references.

Prerequisites: C.E. 17 and 29, and to be taken with C.E. 23 and 32.

23. STRUCTURAL DESIGN. Autumn quarter. Fifteen hours in drawing room. 5 h.

This course covers the detail design of retaining walls, con-

crete arches, masonry dams, steel mill buildings, and other concrete and steel structures.

Prerequisite: To be taken with C.E. 22, 31 and 32.

24. OFFICE BUILDINGS. Two hours lecture, three hours in drawing room. 3 h. Elective.

The design and details of office buildings of steel and of reinforced concrete.

Prerequisites: C.E. 22 and 23.

25. MINE AND MILL STRUCTURES. Two hours lecture, three hours in drawing room. 3 h. Elective.

A study of the design of head frames, coal tipples, coal washers and breakers, concentrating plants, and other mine structures.

Textbook: Ketchum's Design of Mine Structures.

Prerequisites: C.E. 22 and 23.

26. HIGHER STRUCTURES. Winter quarter. Two hours lecture, six hours in drawing room. 4 h.

This course includes the calculation of stresses in statically indeterminate structures such as continuous beams, swing bridges, arch bridges, suspension bridges, transverse bents, head frames, office building frames, rigid frames, etc. Extensive use is made of influence lines and of the method of area moments.

Textbook: Johnson, Bryan and Turneaures' Modern Framed Structures, Part II, references and notes.

Prerequisites: C.E. 18, 22, and 23.

27. HIGHER STRUCTURES. Spring quarter. Two hours lecture, six hours in drawing room. 4 h.

A continuation of C.E. 26.

Prerequisite: C.E. 26.

28. INDUSTRIAL BUILDINGS. Autumn or winter quarter. Two hours lecture, three hours in drawing room. 3 h.

Similar to C.E. 22 but arranged for Electrical, Mechanical, and Chemical Engineering students.

Textbook: Ketchum's Structural Engineers' Handbook, and references.

Prerequisite: C.E. 8.

29. **THEORY OF REINFORCED CONCRETE.** Spring quarter. 3 h.
A study is made of the theory of reinforced concrete.
Textbook: Hool's and Johnson's Reinforced Concrete Handbook.
Prerequisite: C.E. 17, and to be taken with C.E. 18.
30. **REINFORCED CONCRETE DESIGN.** One hour lecture, three hours in drawing room. 2 h. Elective.
This course includes the preparation of designs and detailed drawings of reinforced concrete bridges and buildings.
Textbook: Hool's and Johnson's Reinforced Concrete Handbook.
Prerequisite: C.E. 29.
31. **MASONRY CONSTRUCTION.** Autumn quarter. 3 h.
A study of cements, concrete, retaining walls, dams, arches, and other masonry and reinforced concrete structures. A complete investigation of a reinforced concrete arch is made, using the elastic theory.
Textbooks: Taylor and Thompson's Concrete, Plain and Reinforced; Baker's Masonry Construction, and Ketchum's Design of Walls, Bins and Grain Elevators.
Prerequisites: C.E. 8 and 17, and to be taken with C.E. 23 and 32.
32. **FOUNDATIONS.** Autumn quarter. 2 h.
A study of foundations for bridges and buildings.
Textbook: Jacoby and Davis' Foundations for Bridges and Buildings.
Prerequisite: To be taken with C.E. 23 and 31.
33. **ROADS AND PAVEMENTS.** Autumn quarter. Three hours lecture, three hours in laboratory. 4 h.
A detailed study of country roads and city pavements, together with a study of road building materials, testing, surveys, the design of streets, the construction of modern pavements, road economics, etc.
Prerequisite: To be taken with C.E. 1.
34. **RAILROAD ENGINEERING.** Autumn quarter. Three hours lecture, six hours in field and drawing room. 5 h.
Instruction in railroad engineering consists of field prac-

tice, office, and classroom work. Field practice consists of the complete location of a line of railroad. In the office the quantities are calculated, and profiles and a complete map are drawn. In the classroom a detailed study is made of the principles of economic location and construction, maintenance of way, and railway structures and appliances.

Textbooks: Allen's Railroad Curves and Earthwork; Williams' Design of Railroad Location, and references.

Prerequisites: C.E. 1, 2, 3, and 5.

35. RAILROAD MAINTENANCE. Winter quarter. 2 h.

Rail and tie renewals, surfacing, manufacture of rails, rail failures, ballast, sidings, crossings, and track accessories, are studied in detail. Some time is given to organization of maintenance forces.

Textbook: Willard's Maintenance of Way and Structures.

Prerequisite: C.E. 34.

36. ENGINEERING ECONOMICS. Autumn quarter. 2 h.

A course covering the principles of economics as applied to engineering structures. Some time is given to the valuation of public utilities.

Textbooks: Fish's Engineering Economics; Williams' Design of Railroad Location, and references.

Prerequisite: C.E. 34.

37. BACTERIOLOGY. Spring quarter. 3 h.

Lectures and laboratory demonstration.

This course covers a study of bacteriological methods and their application in water analysis and sewerage.

Textbook: Morrey's Fundamentals of Bacteriology.

Prerequisites: Eng. Phys. 50 and 51.

38. WATER SUPPLY. Autumn quarter. 3 h.

This course covers the principal features of water works design and construction, including quantity and quality of potable water; choice of supply; the designing of distribution systems, reservoirs, dams, and elevated tanks.

Textbook: Turneure and Russell's Public Water Supplies.

Prerequisites: C.E. 11 and 37.

39. WATER POWER ENGINEERING. Winter quarter. 2 h.

Stream flow including hydrographs of actual streams; impulse wheels and reaction turbines and the conditions governing their selection; storage and the relation of the reservoir to the power station; economics of power development, its sale and distribution.

Textbook: Mead's Water Power Engineering.

Prerequisites: C.E. 7, 11, and 12, and to be taken with C.E. 38.

40. SEWERAGE. Winter quarter. 3 h.

This course covers the design and construction of sewerage systems, including separate and combined systems; surveys and plans, determination of size and capacity; construction; and modern methods of sewage disposal.

Textbook: Fowell's Sewerage.

Prerequisite: C.E. 11, and to be taken with C.E. 41.

41. MUNICIPAL AND SANITARY DESIGN. Spring quarter. Nine hours in drawing room. 3 h.

This course consists of the laying out of an industrial town including the street improvements, water supply, storm and sanitary sewers, together with the preparation of the necessary plans, profiles, working drawings, specifications, and estimates of cost.

Prerequisites: C.E. 33 and 38, and to be taken with C.E. 40.

42. IRRIGATION ENGINEERING. Spring quarter. 3 h.

In this course a study is made of the fundamental principles of irrigation engineering, including the design and construction of reservoirs, dams, flumes, canals, and other irrigation works.

Textbook: Davis and Wilson's Irrigation Engineering.

Prerequisites: C.E. 11, 38, and 41.

43. ESTIMATES AND COSTS. Spring quarter. 2 h.

A study of the methods of cost keeping and of estimating the cost of construction.

Prerequisites: C.E. 22, 23, 31, and 32.

44. ENGINEERING CONTRACTS. Winter quarter. 3 h. For senior students only.

The law of engineering contracts and specifications. Em-

phasis is placed on the importance of the clear and definite writing of contracts and specifications, and considerable practice is given the student in the preparation of contracts and specifications.

Textbook: Tucker's Contracts in Engineering.

45. **ENGINEERING ADMINISTRATION.** Spring quarter. 3 h.

A study of the economics of engineering construction, the details of engineering organization for construction and operation, and business organizations. Some time is given to a study of the labor problem, including the hiring and paying of men, welfare, sanitation, and safety.

Prerequisite: C.E. 44.

46. **C.E. SEMINAR.** Spring quarter. 1 h. For senior students only.

A study is made of technical periodicals and literature.

ELECTRICAL ENGINEERING

PROFESSOR EVANS, ASSOCIATE PROFESSOR DU VALL, AND MR. McCORMICK,
MR. COOVER, AND MR. PAGE:

1. **ELECTRICAL MACHINERY.** Autumn quarter. 3 h.

A study of the electric and magnetic circuits of direct current machines and apparatus, with especial emphasis on the mathematical and graphical development of the principles involved in their theory and operation. The work is supplemented by practical problems throughout the course.

Textbook: Franklin and Estey's Elements of Electrical Engineering, Vols. I and II.

Prerequisite: E.E. 30, and to be taken with Eng. Phys. 53, 54, and 55.

2. **ELECTRICAL MACHINERY.** Winter quarter. 3 h.

A continuation of the study of direct current machines and the study of simple alternating current circuits and the operation characteristics of alternating current machinery. Methods of measurement of alternating current are also taken up.

Prerequisite: E.E. 1.

3. **ELECTRICAL MACHINERY.** Spring quarter. 3 h.

A continuation of the study of alternating current machinery.

Prerequisite: E.E. 2, and to be taken with E.E. 33.

4. THEORY OF ALTERNATING CURRENTS. Autumn quarter. 3 h.

A study of the theory, regulation, and operation of the various types of alternating current apparatus—single-phase and polyphase generators, synchronous and induction motors, rotary converters, transformers, etc.; the solution of alternating current circuits; the use of vectors and the complex quantity.

Textbook: Lawrence's Principles of Alternating Current Machinery, and references.

Prerequisites: E.E. 3, and Eng. Phys. 53.

5. THEORY OF ALTERNATING CURRENTS. Winter quarter. 3 h.

A continuation of E.E. 4.

Prerequisite: E.E. 4.

6. THEORY OF ALTERNATING CURRENTS. Spring quarter. 3 h.

A continuation of E.E. 5.

Prerequisite: E.E. 5.

7. TELEPHONE ENGINEERING. Autumn quarter. 3 h.

A study of the electrical principles underlying the transmission of speech, the construction and operation of different types of subscribers' station and central office equipment, underground and aerial lines, automatic and wireless systems, telephone and telegraph engineering problems.

Textbook: McMeen and Miller's Telephony, notes and references.

Prerequisites: E.E. 3 and E.E. 33.

8. TRANSMISSION AND DISTRIBUTION. Winter quarter. 2 h.

A study of the principles of direct and alternating current distribution for light and power purposes, methods of installation and regulation, illustrated by practical application to specific problems, alternating current problems in long distance transmission.

Textbooks: Dwight's Transmission Line Formulas and Lundquist's Transmission Line Construction, notes and references.

Prerequisites: E.E. 4 and E.E. 34.

9. TRANSMISSION AND DISTRIBUTION. Spring quarter. 2 h.

A continuation of E.E. 8.

Prerequisite: E.E. 8.

10. ILLUMINATION AND PHOTOMETRY. Autumn quarter. 3 h.

A study of illuminants with respect to their adaptation to interior and exterior lighting and methods of determining the amount, character, and distribution of their light flux, together with the engineering and economic principles of illumination.

Textbook: Wickenden's Illumination and Photometry, notes and references.

Prerequisite: To be taken with E.E. 1.

11. ELECTRIC AND MAGNETIC CIRCUITS. Autumn quarter. 2 h.

This course is a very elementary course offered to beginning students to introduce fundamental laws and principles as early as possible. It is largely a problem course familiarizing the student with the laws and principles by drill in concrete examples.

Textbook: Notes and references.

Prerequisite: To be taken with Eng. Phys. 50 and 51 and Eng. Math. 4a.

12. ELECTRIC AND MAGNETIC CIRCUITS. Winter quarter. 2 h.

A continuation of E.E. 11.

Prerequisite: E.E. 11, and to be taken with Eng. Phys. 50 and 51, and Eng. Math. 4b.

13. ELECTRICAL MACHINERY. Winter quarter. 3 h.

A course, arranged for students who are not specializing in electrical engineering, covering the laws and properties of electric and magnetic circuits; the theory, construction, and operation of direct current machines and apparatus; the solution of practical problems.

Textbook: Gray's Principles and Practice of Electrical Engineering.

Prerequisites: C.E. 7 and Eng. Math. 3.

14. ELECTRICAL MACHINERY. Spring quarter. 4 h.

A continuation of Course 13, including also a study of the simpler principles of alternating currents and alternating current machinery.

Prerequisite: E.E. 13.

15. PRIMARY AND SECONDARY BATTERIES. 1 h. Elective.

A course devoted primarily to the study of storage batteries,

their use, maintenance, and care, and their application to central station work and power distribution.

Prerequisite: E.E. 2 or 13.

16. E.E. SEMINAR. Spring quarter. 1 h. For senior students only.

A course in the history of electrical engineering and the biography of prominent engineers; also reviews of current electrical literature.

17. ENGINEERING MATERIALS. Autumn quarter. 3 h.

A study is made of the properties of materials used in engineering construction, the effects of different methods of manufacture upon the quality of material, and specifications and standard tests for materials.

Textbook: Mill's Materials of Engineering and notes.

Prerequisite: Eng. Math. 3, and to be taken with Eng. Phys. 50 and 51.

18. ORGANIZATION AND MANAGEMENT. Autumn quarter. 3 h.

Lectures and assigned reading.

A course dealing with engineering as a business problem, showing the importance of the dollar as a factor in engineering decisions. Fundamental principles studied as to costs, handling of labor and materials, producing a working organization, and the engineer in the appraisal of public utilities for rate making, taxation, issue of securities and sale.

Textbook: Notes and references.

Prerequisite: E.E. 3, and to be taken with E.E. 4.

19. TELEPHONE ENGINEERING (ADVANCED). 3 h. Elective.

A course covering the various types of telephone lines and switchboards, methods of testing lines and cables, traffic problems, economics of telephone engineering.

Prerequisite: E.E. 7.

20. ILLUMINATION AND PHOTOMETRY (ADVANCED). 3 h. Elective.

The calculation of light flux and illumination. The design and comparison of illuminating systems. Practical tests of existing installations.

Prerequisite: E.E. 10.

21. ELECTRIC RAILWAY ENGINEERING. Autumn quarter. 2 h.

A detailed study of the principles of design and installation

of electric railway systems, storage battery installations, distribution systems; surface, overhead and underground railways. Principles and operation of various systems of train control, manual and automatic block signals and interlocking systems. Both direct and alternating current systems are covered. Some time is also given to the electrification of railroad terminals.

Textbook: Harding's Electric Railway Engineering, notes and references.

Prerequisite: E.E. 3, and to be taken with E.E. 4.

22. ELECTRIC RAILWAY ENGINEERING. Winter quarter. 2 h.

A continuation of E.E. 21.

Prerequisite: E.E. 21.

23. ELECTRIC RAILWAY ENGINEERING. Spring quarter. 2 h.

A continuation of E.E. 22.

Prerequisite: E.E. 22.

24. RAILWAY SIGNALING. 2 h. Elective.

A course covering the development and present-day practice in signaling, dispatching, and interlocking with some special applications.

Prerequisites: E.E. 21 and 22, or may be taken with E.E. 22.

30. ELECTRIC AND MAGNETIC CIRCUITS. Spring quarter. Three hours in laboratory. 1 h.

A study of the circuits of various types of apparatus and laboratory installations. This course is to prepare the student for the laboratory work which follows.

Prerequisites: E.E. 11 and 12.

31. DIRECT CURRENT LABORATORY. Autumn quarter. Six hours in laboratory. 2 h.

Experimental study of the characteristics of direct current generators and motors, methods of testing, commercial tests, etc.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisite: E.E. 30, and to be taken with E.E. 1 and Eng. Phys. 54 and 55.

32. PHOTOMETRY LABORATORY. Winter quarter. Six hours in laboratory. 2 h.

A laboratory course in the determination of the strength and distribution of light of various types of illuminants, practice in the use of different photometers, measurement and representation of illumination.

Prerequisites: E.E. 10 and 31.

33. DIRECT CURRENT LABORATORY. Spring quarter. Six hours in laboratory. 2 h.

Continuation of E.E. 31.

Prerequisite: E.E. 31, and to be taken with E.E. 3.

34. ALTERNATING CURRENT LABORATORY. Autumn quarter. Six hours in laboratory. 2 h.

Experimental study of the properties and performance of alternating current generators, motors, transformers, rotary converters, methods of alternating current measurements and commercial tests, including complete operation tests.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisites: E.E. 3 and 33, and to be taken with E.E. 4.

35. ALTERNATING CURRENT LABORATORY. Winter quarter. Six hours in laboratory. 2 h.

Continuation of E.E. 34 with some high tension tests.

Prerequisite: E.E. 34 and to be taken with E.E. 5 and 8.

36. EXPERIMENTAL ELECTRICAL ENGINEERING. Spring quarter. One hour lecture, six hours in laboratory. 3 h.

Special tests in line with current electrical engineering problems such as insulation tests and high tension phenomena. Some time is also given to the work of the Standardization Laboratory and such special pieces of apparatus as the oscillograph and the artificial transmission line. Original effort on the part of the student is encouraged in the preparation of problems, manner of handling experiments, and in the interpretation of results.

Prerequisites: E.E. 5, 8, and 35.

37. E.E. LABORATORY. Spring quarter. Three hours in laboratory. 1 h.

A laboratory course in the testing and operation of direct

and alternating current machinery, arranged for students not specializing in electrical engineering.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisite: E.E. 13, and to be taken with E.E. 14.

40. CENTRAL STATION DESIGN. Autumn quarter. One hour lecture, three hours in drawing room. 2 h.

Lectures, problems, drawings.

Principles of design of direct and alternating current apparatus. The location and design of electric power plants and substations for public service. Complete drawings and details of cost and construction required.

Textbook: Still's Principles of Electrical Design, notes and references.

Prerequisite: M.E. 7 and to be taken with E.E. 4 and 34.

41. CENTRAL STATION DESIGN. Winter quarter. Nine hours in drawing room. 3 h.

Continuation of E.E. 40.

Prerequisite: E.E. 40 and to be taken with E.E. 8 and 35.

42. CENTRAL STATION DESIGN. Spring quarter. Six hours in drawing room. 2 h.

Continuation of E.E. 41.

Prerequisite: E.E. 41.

43. CENTRAL STATION DESIGN (ADVANCED). Six hours in drawing room. 2 h. Elective.

A continuation of E.E. 42, taking up the construction and operation of hydro-electric and gas electric power plants. Complete drawings and details of costs and construction required.

Prerequisite: E.E. 42.

MECHANICAL ENGINEERING

PROFESSOR HUNTER, ASSOCIATE PROFESSORS BAUER AND SIMMERING,
ASSISTANT PROFESSOR MALLORY, AND MR. BEATTIE, MR. BURLINGAME, AND MR. ASHCRAFT:

1. KINEMATICS. Any quarter. 3 h.

A study of the relative motions of machine parts, instant

centers, straight line motion, cams, gearing, belting and intermittent motions.

Textbook: Keown's Mechanism.

Prerequisites: Eng. Math. 1 and 2, and to be taken with Eng. Phys. 50 and 51.

2. ENGINEERING MATERIALS. Autumn quarter. 4 h.

This course is a study of the manufacture, properties and selection of the materials used in engineering construction.

Textbook: Mill's Materials of Construction.

Prerequisite: Eng. Math. 3, and to be taken with Eng. Phys. 50 and 51.

3. ENGINEERING MATERIALS. Autumn quarter. 2 h.

A course similar to M.E. 2, but covering the subject more briefly.

Textbook: Moore's Materials of Engineering.

Prerequisite: Eng. Math. 3, and to be taken with Eng. Phys. 50 and 51.

4. HEAT TREATMENT OF STEEL. Winter or spring quarter. 3 h.

A study of the theory of hardening, tempering, annealing, toughening, case hardening and the application of modern processes to the heat treatment of steel.

Textbook: Bullen's Steel and Its Heat Treatment.

Prerequisite: M.E. 2 or 3.

5. STEAM ENGINES AND BOILERS. Any quarter. 3 h.

This course includes an elementary study of thermodynamics, various types of steam boilers and engines, valve gears, and other power plant apparatus.

Textbook: Allen and Bursley's Heat Engines.

Prerequisites: Eng. Phys. 50 and 51.

6. THERMODYNAMICS. Winter quarter. 2 h.

The fundamental principles of thermodynamics are studied, including fundamental laws, laws of perfect gases; gas and vapor cycles; laws of vapors.

Textbook: Ennis' Applied Thermodynamics for Engineers.

Prerequisites: M.E. 5, Eng. Math. 4 and Eng. Phys. 50 and 51.

7. THERMODYNAMICS. Spring quarter. 3 h.

A continuation of M.E. 6, including the applications of the principles of thermodynamics to heat power engineering.

Textbook: Ennis' Applied Thermodynamics for Engineers.

Prerequisite: M.E. 6.

8. THERMODYNAMICS. Winter quarter. 4 h.

This course is primarily for mechanical engineering students and consists of a detailed study of the principles of thermodynamics and the practical applications to heat power engineering.

Textbook: Ennis' Applied Thermodynamics for Engineers.

Prerequisites: M.E. 5, Eng. Math. 4, and Eng. Phys. 50 and 51.

9. THERMODYNAMICS. Spring quarter. 3 h.

A continuation of M.E. 8.

Textbook: Ennis' Applied Thermodynamics for Engineers.

Prerequisite: M.E. 8.

10. HEATING AND VENTILATION. Spring quarter. 3 h.

This course includes a study of the principles of heating and ventilation; also a study of the warm air, hot water, vapor and steam systems of heating and mechanical systems of ventilation. Each student is required to design a heating and ventilating system for a given building, including complete specifications.

Textbook: Green's Heating and Ventilation of Buildings.

Prerequisites: M.E. 6 and 7, or M.E. 8 and 9.

11. LOCOMOTIVES AND AIR BRAKES. Winter quarter. 3 h.

The mechanics of the locomotive and problems relating to its operation; the engine and valve mechanism, train resistance, rail pressure, slipping, braking, hauling capacity and steam consumption are each discussed with problems.

Textbooks: Henderson's Operations, and McShane's Locomotive, Up to Date.

Prerequisites: M.E. 5 and 31.

12. AUTOMOBILES AND GAS ENGINES. Autumn quarter. 3 h.

This course covers the construction and operation of automobiles, gas engines and producer gas plants.

Textbooks: Hobbs and Elliott's The Gasoline Automobile, and Streeter's Internal Combustion Engines.

Prerequisites: M.E. 8 and 9.

13. **HYDRAULIC MACHINERY.** Winter quarter. 2 h.

This course covers the application of the principles of the dynamics of fluids to the various turbines and other water wheels, hydraulic presses, lifts and cranes.

Textbook: Blaine's Hydraulic Machinery.

Prerequisites: C.E. 11 and M.E. 5.

14. **WORKS MANAGEMENT.** Autumn quarter. 3 h.

This course covers the economical designs and management of manufacturing property, the capitalization and organization of companies, the organization of labor, the calculation of cost, transmission of power, and sanitation.

Textbook: Ennis' Works Management.

Prerequisite: M.E. 5.

15. **VALVE GEARS.** Winter quarter. 2 h.

This course covers a theoretical and practical study of valve gears and link motions.

Textbook: Fessenden's Valve Gears.

Prerequisite: M.E. 5.

16. **PRINCIPLES OF AVIATION.** Autumn quarter. 2 h.

A study of the history, types and nomenclature of the aeroplane, with particular reference to air resistance, principles of flight, materials of construction, rigging of aeroplanes, propellers and engines.

Textbook: Colvin's Aircraft Mechanics Handbook.

Prerequisites: M.E. 8 and 9, and to be taken with M.E. 12.

17. **STEAM TURBINES.** Spring quarter. 2 h.

A study of the design and operation of steam turbines covering the comparison of types, flow of steam and its action on turbine vanes, design of vanes for maximum efficiency, theory of single and multi-stage turbines, turbine performance, and condensing apparatus.

Textbook: Moyer's Steam Turbines.

Prerequisites: M.E. 8 and 9, or M.E. 6 and 7.

18. COMPRESSED AIR. Autumn quarter. 2 h.

A study of air compressors, the transmission of compressed air and its application to pneumatic machinery.

Textbook: Peele's Compressed Air Plant.

Prerequisites: M.E. 8 and 9.

19. REFRIGERATION. Winter quarter. 3 h.

The principles of the compression and absorption systems of refrigeration and also the application of mechanical refrigeration to ice making, cold storage, etc.

Textbook: MacIntire's Mechanical Refrigeration.

Prerequisites: M.E. 8 and 9.

20. RAILWAY OPERATION AND SIGNALS. Spring quarter. 2 h.

This course covers the operation of trains, handling of freight, and the construction, operation and maintenance of railway signals.

Prerequisite: M.E. 11.

21. M. E. SEMINAR. Winter quarter. 1 h. For senior students only.

A study and discussion of technical periodicals and engineering literature.

22. M. E. SEMINAR. Spring quarter. 1 h.

A continuation of M.E. 21.

23. MECHANICS OF MACHINERY. Spring quarter. 3 h.

This course covers the application of the principles of theoretical and applied mechanics to such problems in machine design, as transmission of power by belting, ropes, and chains, dynamometers, friction in machine parts, and useful applications of friction to clutches and brakes; efficiency of machines; high speed shafting and balancing.

Textbook: Leutwiler's Machine Design.

Prerequisite: M.E. 42.

24. POWER PLANT EFFICIENCY. Spring quarter. 2 h.

This course takes up the study of fuels, their selection and treatment, combustion, methods of firing, smoke prevention, heat absorption, boiler efficiency, boiler plant management and operation.

Prerequisites: M.E. 5 and 7.

25. **CHEMICAL ENGINEERING SEMINAR.** Autumn quarter. 1 h.

A course in engineering literature making use of the technical periodicals and articles published by chemists and engineers.

Prerequisite: M.E. 7.

26. **CHEMICAL ENGINEERING MATERIALS.** Winter quarter. 2 h.

This course is offered to chemical engineering students only after they have had the major part of their chemistry. It takes up the study of abrasion materials, polishing materials, oils and greases, paints, varnishes, leather and other materials not given in Course 3.

Prerequisites: M.E. 24 and 25.

30. **M. E. LABORATORY.** Any quarter. Six hours in laboratory. 2 h.

Experimental work in calibration of planimeters, water meters and gages; tests of dryness and quality of steam; tests of acidity, specific gravity, chilling and flashing points, and viscosity of oils and other lubricating materials; of impurities in boiler feed water; calometric analysis of solid, liquid and gaseous fuels.

Textbook: Carpenter and Diederich's *Experimental Engineering* is used as a reference.

Prerequisite: M.E. 5, and to be taken with M.E. 6.

31. **STEAM ENGINE LABORATORY.** Autumn quarter. Six hours in laboratory. 2 h.

The laboratory work includes, the calibration of steam engine indicators; a study of indicator cards; tests of simple engines; boiler tests; flue gas analysis; tests of injectors and boiler feed pumps; tests of internal combustion engines.

Prerequisites: M.E. 9 and 30.

32. **STEAM ENGINE LABORATORY.** Autumn quarter. Nine hours in the laboratory. 3 h.

Similar in character to M.E. 31 but more extensive, including a complete test of a steam-electric power plant.

Prerequisites: M.E. 7 and 30.

33. **STEAM ENGINE LABORATORY.** Winter quarter. Nine hours in the laboratory. 3 h.

Advanced work in engine testing; application of Clayton's

analysis to steam engine performance; advanced work in boiler performance; tests of heating boilers and of power plants; tests on fans, blowers, compressors and flow of air in pipes.

Prerequisite: M.E. 31.

40. MACHINE DRAWING. Any quarter. Two hours lecture, nine hours in drawing room. 5 h.

A study of machine elements, such as bolts, rivets, screws, keys, couplings and gears. Problems are given requiring simple calculations for strength, including sketching and working drawings.

Textbook: Leutwiler's Machine Design, supplemented by notes.

Prerequisites: M.E. 1 and M.E. 2, or M.E. 3, or E.E. 17.

41. MACHINE DESIGN. Autumn quarter. Two hours lecture, nine hours in drawing room. 5 h.

This course covers advanced problems in kinematics, the design of belting, shafting, bearings and pulleys, and the design of a toggle press, including a set of working drawings and bill of materials.

Textbook: Leutwiler's Machine Design.

Prerequisites: M.E. 2 and 40, C.E. 6, and to be taken with C.E. 8.

42. MACHINE DESIGN. Winter quarter. One hour lecture, and nine hours in drawing room. 4 h.

A continuation of M.E. 41.

Prerequisite: M.E. 41.

44. MACHINE DESIGN. Winter or spring quarter. One hour lecture, six hours in drawing room. 3 h.

This course is similar to M.E. 41 and is arranged for students in electrical and chemical engineering.

Textbook: Leutwiler's Machine Design.

Prerequisites: E.E. 17, Eng. Phys. 52 and 53 or C.E. 7, and to be taken with C.E. 8, M. E. 1, 2, and 40.

45. STEAM ENGINE AND BOILER DESIGN. Autumn quarter. One hour lecture, six hours in drawing room. 3 h.

This course covers the design of simple and compound steam engines and of fire and water tube boilers.

Prerequisites: M.E. 9, 15, and 42.

46. STEAM ENGINE AND BOILER DESIGN. Winter quarter. One hour lecture, six hours in drawing room. 3 h.

A continuation of M.E. 45.

Prerequisite: M.E. 45.

47. POWER PLANT DESIGN. Spring quarter. Two hours lecture, nine hours in drawing room. 5 h.

Each student is required to make a design, with estimate and specifications, of a steam-electric power plant to operate most economically on a given load curve.

Textbooks: Gebhardt's Steam Power Plant Engineering and Fernald and Orrok's Engineering of Power Plants.

Prerequisite: M.E. 46.

48. CHEMICAL ENGINEERING DESIGN. Winter quarter. One hour lecture, six hours in drawing room. 3 h.

A course in the mechanical analysis and design of special classes of machinery and layouts used in chemical processes, such as pumping machinery and piping, crushers and conveyors, presses, condensers, and power apparatus.

Prerequisites: M.E. 7 and 44.

SHOP WORK

1. WOOD WORKING. Autumn or winter quarter. Six hours in shop. 2 h.

The use of all ordinary woodworking tools in a series of gradual exercises, including the use of speed lathe and turning tools.

2. PATTERN MAKING. Winter quarter. Three hours in shop. 1 h.

Making patterns for iron and brass castings with allowance for draft, shrinkage and finish.

Prerequisite: Shop Work 1.

3. FORGING. Spring quarter. One hour lecture, six hours in shop. 3 h.

Practical work in the forging and welding of iron and steel, tool dressing, tempering, case hardening and annealing. This course is designed to familiarize the student with the properties and structure of the different irons and steels.

Prerequisites: M.E. 2 and 4.

4. **FORGING.** Autumn quarter. Six hours in shop. 2 h.

This course is similar to Shop Work 2 and made to accommodate electrical engineering students.

Prerequisite: To be taken with E.E. 17.

5. **FOUNDRY.** Spring quarter. One hour lecture, six hours in shop. 3 h.

Practical work in the making of moulds and cores; the care and operation of the cupola furnace and the brass furnace; mixing of metals; and the study of the properties of alloys.

Prerequisite: M.E. 2 or 3.

6. **FOUNDRY.** Winter quarter. Six hours in shop. 2 h.

This course is similar to Shop Work 4 and made to accommodate electrical engineering students.

Prerequisite: E.E. 17 or M.E. 2.

7. **MACHINE SHOP.** Winter quarter. One hour lecture, six hours in shop. 3 h.

Practical work in the machining of the different grades of iron, steel, bronze, and other metals by means of the lathe, planer, milling machine, and drill press. New machines and machine parts are constructed.

Prerequisites: M.E. 1 and 2, and Shop 3.

8. **MACHINE SHOP.** Spring quarter. Six hours in shop. 2 h.

A continuation of Shop Work 5, taking up grinding, lapping, tool making, and construction of helical gears.

Prerequisite: Shop Work 7.

9. **MACHINE SHOP.** Autumn quarter. Six hours in shop. 2 h.

This course is similar to Shop Work 5 and made to accommodate electrical engineering students.

Prerequisite: To be taken with E.E. 17.

10. **GENERAL SHOP WORK.** Spring quarter. Three hours in shop. 1 h.

This course is to give the chemical engineering student a general idea of the processes and tools used in the wood shop, forge shop, machine shop, and foundry.

Prerequisite: M.E. 3.

ENGINEERING MATHEMATICS

PROFESSOR SPERRY, MR. HUTCHINSON, MR. SKINKER, MR. HUNTZICKER,
AND MR. FROESE:

1a. ALGEBRA. Any quarter. 3 h.

A one-quarter course through the quadratic equation and linear systems of simultaneous equations. Logarithms, functions and their graphical representation are included.

Textbook: Skinner's College Algebra.

Prerequisites: high-school algebra through quadratics, plane and solid geometry.

1b. ALGEBRA. Any quarter. 3 h.

A one-quarter course in continuation of Eng. Math. 1a, including inequalities, complex numbers, theory of equations, the compound interest law and probability.

Textbook: Skinner's College Algebra.

Prerequisites: Eng. Math. 1a and 2a.

2a. TRIGONOMETRY. Any quarter. 2 h.

A one-quarter course through the functions of the sum of two angles and including the fundamental relations and the right triangle.

Textbook: Bauer and Brooke's Plane and Spherical Trigonometry.

Prerequisite: Same as for Eng. Math. 1a.

2b. TRIGONOMETRY. Any quarter. 2 h.

A one-quarter course in continuation of Eng. Math. 2a through the right spherical triangle and the fundamental formulas for the oblique spherical triangle.

Textbook: Bauer and Brooke's Plane and Spherical Trigonometry.

Prerequisites: Eng. Math. 1a and 2a.

3. ANALYTIC GEOMETRY. Any quarter. 5 h.

A one-quarter course including transcendental functions, tangents, and the quadric surfaces. A number of graphs and constructions drawn according to exact directions are required.

Textbook: Wilson and Tracey's Analytic Geometry.

Prerequisites: Eng. Math. 1b and 2b.

4a. CALCULUS. Any quarter. 4 h.

A one-quarter course in fundamental differentiation with applications not including series and partial differentiation.

Textbook: Phillips' Differential and Integral Calculus.

Prerequisite: Eng. Math. 3.

4b. CALCULUS. Any quarter. 4 h.

A one-quarter course in continuation of Eng. Math. 4a covering series, partial differentiation, and elementary integration.

Textbook: Phillips' Differential and Integral Calculus.

Prerequisite: Eng. Math. 4a.

4c. CALCULUS. Any quarter. 4 h.

A one-quarter course in continuation of Eng. Math. 4b covering integration with applications to pressures, centers of gravity, and moments of inertia, and elementary differential equations.

Textbook: Phillips' Differential and Integral Calculus.

Prerequisite: Eng. Math. 4b.

5. DIFFERENTIAL EQUATIONS. Spring quarter. Elective. 5 h.

A one-quarter course in ordinary differential equations with engineering and physical applications. Hyperbolic functions are included.

Textbook: Murray's Differential Equations.

Prerequisite: Eng. Math. 4c.

6. GEODESY AND LEAST SQUARES. Spring quarter. Three hours lecture, three hours in field. 4 h.

A one-quarter course in the determination of the geodetic positions, the figure of the earth, the theory of least squares and its application to triangulation, leveling, and base line measurement.

Textbook: Ingram's Geodetic Surveying.

Prerequisites: Eng. Math. 4c and C.E. 2.

7. MATHEMATICAL THEORY OF HEAT CONDUCTION. Autumn quarter. 4 h. Elective.

A one-quarter course in Fourier's series and integral with applications to problems in the flow of heat.

Textbook: Ingersoll and Jobell's Mathematical Theory of Heat Conduction.

Prerequisite: Eng. Math. 5.

8. THEORY OF MEASUREMENTS. Winter quarter. 4 h. Elective.

A one-quarter course in the theory of least squares and the precision of measurements with applications to experimental laboratory work.

Textbook: Weld's Theory of Least Squares.

Prerequisite: Eng. Math. 4c.

GENERAL ENGINEERING DRAWING

ASSOCIATE PROFESSOR ALLEN, MR. BRUBAKER, AND MR. MILLER:

1. MECHANICAL DRAWING. Autumn or winter quarter. One hour lecture and nine hours in drawing room. 4 h.

Use of drawing instruments, lettering, linear perspective, machine sketching, principles of isometric, cabinet and orthographic projections, making of working drawings, tracing and blue printing.

Textbook: French's Engineering Drawing.

2. MECHANICAL DRAWING. Winter or spring quarter. One hour lecture, and nine hours in drawing room. 4 h.

Continuation of Draw. 1.

Prerequisite: Draw. 1.

3. DESCRIPTIVE GEOMETRY. Winter or spring quarter. Two hours lecture and six hours in drawing room. 4 h.

The course covers the orthographic projection of points, lines, planes, curved surfaces, etc., in the four angles of projection, intersections and developments of surfaces. In order to fix the principles, many geometric problems are solved, also a large number of practical applications are worked out.

Textbook: Smith's Practical Descriptive Geometry, second edition.

Prerequisites: Draw. 1 and 2, and solid geometry.

ENGINEERING ENGLISH

ASSISTANT PROFESSOR BIRK, MR. SETTLES, AND MR. TIPPETT:

1. RHETORIC. Autumn or winter quarter. 3 h.

A course in composition arranged with special reference to engineering students.

2. RHETORIC. Winter or spring quarter. 3 h.

A continuation of Eng. English 1.

3. RHETORIC. Autumn or spring quarter. 3 h.

A continuation of Eng. English 2.

4. ENGINEERING LITERATURE. Winter or spring quarter. 2 h.

In this course the student reads and analyzes selections from the best writings in pure science and in engineering. The student is shown the value of clear, concise and accurate diction.

Supplementary Reading. In addition to the reading in this course the student is required to do a prescribed amount of reading during the sophomore and junior years. The list of required books is printed in a supplementary pamphlet.

Prerequisite: Eng. English 1.

5. TECHNICAL WRITING. Autumn or winter quarter. 2 h.

This is an advanced course in composition with particular reference to the needs of the individual student. Particular attention is given to the preparation of engineering reports and to technical journalism.

Prerequisites: Eng. English 3, and junior standing in the College of Engineering.

ENGINEERING PHYSICS

PROFESSORS LESTER AND WOODROW, ASSOCIATE PROFESSOR RANDOLPH,
AND MR. WARNER:

50. GENERAL PHYSICS. Three quarters. Lectures two hours. Recitations two hours. 4 h.

Prerequisites: elementary physics and Eng. Math. 2.

51. EXPERIMENTAL PHYSICS. Three quarters. One three-hour period. 1 h.

Prerequisites: elementary physics and Eng. Math. 2.

Eng. Phys. 50 is an elementary but thorough presentation of the fundamental facts, principles and applications of modern physics. The lectures are fully illustrated by apparatus and by experiments. The recitations are based upon both the lectures

and a textbook which is studied systematically in parallel with the lectures.

It is strongly recommended that Course 51 be taken in parallel with Course 50. When not so taken, Course 50 or its equivalent must precede.

The above courses or their equivalent are prerequisite to all other courses in physics.

52. ANALYTICAL MECHANICS—STATICS. Spring quarter. 3 h.

A study of the conditions of equilibrium of particles and rigid bodies, with some attention also to centers of mass and moments of inertia.

Prerequisites: Eng. Phys. 50 and Eng. Math. 4a and 4b, and to be taken with 4c.

53. ANALYTICAL MECHANICS—DYNAMICS. Autumn quarter. 3 h.

A study of the motions of particles and rigid bodies. Emphasis is laid upon the fundamental physical principles of the subject and an attempt is made to give the student a certain facility in translating physical conceptions into mathematical symbols and mathematical formulæ into physical ideas.

Prerequisites: Eng. Phys. 52 and Eng. Math. 4c.

54a. THEORY OF ELECTRICITY AND MAGNETISM. Autumn quarter. 2 h.

The elements of the mathematical theory of electricity and magnetism with applications to the general theory of instruments of fundamental importance in electrical measurements.

Prerequisites: Eng. Phys. 50 and 52, and Eng. Math. 4c, and to be taken with Eng. Phys. 53.

54b. THEORY OF ELECTRICITY AND MAGNETISM. Winter quarter. 3 h.

A continuation of Eng. Phys. 54a.

55. ELECTRICAL MEASUREMENTS I. Autumn quarter. Three three-hour periods. 3 h.

A laboratory course intended to accompany and to supplement Eng. Phys. 54.

Prerequisites: Eng. Phys. 50 and 51, and Eng. Math. 4c.

56. ELECTRICAL MEASUREMENTS II. Winter quarter. One hour lecture and six hours in laboratory. 3 h. Elective.

This course deals with selected electrical problems of con-

siderable difficulty requiring a rather advanced knowledge of the theory of electricity and magnetism.

Prerequisites: Eng. Phys. 54 and 55.

57. **ELECTRIC WAVES AND RADIO-COMMUNICATION.** Autumn quarter. 3 h. Elective.

A study of electromagnetic waves and the theory of radio-communication involving at least a fair knowledge of electricity and magnetism.

Prerequisite: Eng. Phys. 54, and some knowledge of Alternating Current theory.

58. **WIRELESS TELEGRAPHY AND TELEPHONY.** Winter quarter. 3 h. Elective.

A course dealing with practical methods and with the theory and functions of the various apparatus employed.

Prerequisite: Eng. Phys. 57.

59. **ELECTRICAL MEASUREMENTS III.** Spring quarter. Six hours in laboratory. 2 h. Elective.

A course in electrical measurements at radio frequencies, intended primarily to supplement Eng. Physics 58.

Other courses in the College of Liberal Arts may be found on page 104, and those in the Graduate School on page 212.

ENGINEERING CHEMISTRY

PROFESSOR EKELEY, ASSOCIATE PROFESSOR GERMANN, ASSISTANT PROFESSOR DEAN, AND MR. VANVALKENBURGH AND MR. CORNELL:

1. **GENERAL CHEMISTRY LECTURES.** Three quarters. 3 h.

A course of lectures dealing with the laws and theories of chemistry, together with a study of the elements and their most important compounds.

2. **GENERAL CHEMISTRY LABORATORY.** Three quarters. One three-hour period. 1 h.

A laboratory course designed to accompany Eng. Chem. 1.

3. **QUALITATIVE ANALYSIS.** Three quarters. One hour lecture and six hours in laboratory. 3 h.

A course in the separation and identification of the more

common bases and acids. The lectures deal with the chemistry of the analytical reactions, special emphasis being given to the application of mass-action, ion-product, etc.

Prerequisites: Eng. Chem. 1 and 2.

4. QUANTITATIVE ANALYSIS. Three quarters. One hour lecture and nine hours in laboratory. 4 h.

Elementary gravimetric and volumetric analysis, chemical calculations, etc.

Prerequisite: Eng. Chem. 3, or to be taken with Eng. Chem. 3.

5. ORGANIC CHEMISTRY LECTURES. Three quarters. 3 h.

A study of the methods of preparation and the properties of the more important organic compounds. Special stress is laid upon the theories underlying the subject and the proofs of the constitution of most of the substances studied.

Prerequisites: Eng. Chem. 3 and 4.

6. ORGANIC PREPARATIONS. Spring quarter. Nine hours in laboratory. 3 h.

A laboratory course in the preparation of typical aliphatic and aromatic compounds.

Prerequisite: To be taken with Eng. Chem. 5.

7. PHYSICAL CHEMISTRY LECTURES. Three quarters. 3 h.

A lecture course presenting the conceptions of the modern physico-chemical theories concerning the states of aggregation of matter, solutions, thermo-chemistry, equilibria, chemical kinetics, electro-chemistry, and actino-chemistry.

Prerequisites: Eng. Chem. 5 and 6.

8. PHYSICAL CHEMISTRY LABORATORY. Winter and spring quarters. Six hours in laboratory. 2 h.

A laboratory course supplementing Eng. Chem. 7, consisting of the determinations of densities, molecular weights, thermo-chemical and optical constants, conductivity of solutions, electromotive force, transference numbers, viscosity, surface tension, electrochemical equivalents, transition points, etc.

9. CHEMISTRY OF MATERIALS. Winter quarter. One three-hour period. 1 h.

A laboratory course designed to accompany M.E. 26.

10. CHEMISTRY OF MATERIALS. Spring quarter. Six hours in laboratory. 2 h.

A continuation of Eng. Chem. 9.

11. INDUSTRIAL CHEMISTRY. Spring quarter. 4 h.

A lecture course on the principal chemical industries.

Prerequisites: Eng. Chem. 6 and 7.

GRADUATE SCHOOL

FACULTY*

GEORGE NORLIN, Ph.D., President of the University.

OLIVER C. LESTER, A.B., 1897, Central College; A.M., 1902, Ph.D., 1904, Yale; Dean; Professor of Physics.

J. RAYMOND BRACKETT, A.B., 1875, A.M., 1878, Bates; Ph.D., 1880, Yale. Professor of Comparative Literature, Emeritus.

IRA M. DELONG, A.B., 1878, A.M., 1881, Simpson College; LL.D., 1914, University of Denver. Professor of Mathematics.

FRED B. R. HELLEMS, A.B., 1893, Toronto; Ph.D., 1898, Chicago; LL.D., 1913, Colorado College. Professor of Latin.

CHARLES C. AYER, A.B., 1889, Harvard; Ph.D., 1896, Strasburg. Professor of Romance Languages.

FRANCIS RAMALEY, B.S., 1895, Ph.D., 1899, Minnesota. Professor of Biology.

MELANCHTHON F. LIBBY, A.B., 1890, Toronto; Ph.D., 1900, Clark. Professor of Philosophy.

JOHN BERNARD EKELEY, A.B., 1891, A.M., 1893, Colgate; Ph.D., 1902, University of Freiburg in Baden; Sc.D., 1911, Colgate. Professor of Chemistry.

†RUSSELL D. GEORGE, A.B., 1897, A.M., 1898, McMaster. Professor of Geology.

JOHN D. FLEMING, A.B., 1875, Central University; LL.B., 1879, Louisville; LL.D., 1910, Central University. Charles Inglis Thomson Professor of Law.

‡MILO S. KETCHUM, B.S., 1895, C.E., 1900, Illinois. Professor of Civil Engineering.

EDWARD JACKSON, C.E., 1874, A.M., 1878, Union College; M.D., 1878, Pennsylvania; Sc.D., 1914, Union College. Professor of Ophthalmology.

HERBERT S. EVANS, B.S., 1898, E.E., 1900, Nebraska. Professor of Electrical Engineering.

* This Faculty is made up of Professors and Instructors of the various Faculties of the University who offer work in the Graduate School.

† On leave of absence, Autumn Quarter, 1919-1920.

‡ Resigned October 10, 1919.

JOHN A. HUNTER, B.S., 1890, M.E., 1896, Pennsylvania State College.
Professor of Mechanical Engineering.

THEODORE D. A. COCKERELL, Sc.D., 1913, Colorado College. Professor
of Zoology.

*GEORGE M. CHADWICK. Professor of Music.

JAMES F. WILLARD, B.S., 1898, Ph.D., 1902, Pennsylvania. Professor
of History.

FRANK E. THOMPSON, A.B., 1901, Leland Stanford. Professor of Ed-
ucation.

ROSS C. WHITMAN, A.B., 1894, M.D., 1899, Michigan. Professor of
Pathology.

JUNIUS HENDERSON, A.B., 1908, Colorado. Professor of Natural His-
tory.

JOHN S. MCLUCAS, A.B., 1893, South Carolina College; A.B., 1895,
A.M., 1899, Harvard. Professor of English.

GRACE VAN SWERINGEN BAUR, B.L., 1893, Cornell; Ph.D., 1904, Uni-
versity of Berlin. Professor of Germanic Languages.

†CLOUGH T. BURNETT, M.D., 1908, Michigan. Professor of Bacteriol-
ogy.

MILO G. DERHAM, A.B., 1892, Cornell; Ph.D., 1904, Colorado. Pro-
fessor of Greek.

LAWRENCE W. COLE, A.B., 1899, Oklahoma; A.M., 1904, Ph.D., 1910,
Harvard. Professor of Psychology.

JAMES C. TODD, Ph.B., 1897, Wooster; M.D., 1900, Pennsylvania.
Professor of Clinical Pathology.

HOMER C. WASHBURN, Ph.C., 1902, B.S. (Phar.), 1904, Michigan.
Professor of Pharmacy.

LORAN D. OSBORN, A.B., 1892, Michigan; Ph.D., 1900, Chicago. Pro-
fessor of Sociology.

FREDERICK A. BUSHEE, B.L., 1894, Dartmouth; A.M., 1898, Ph.D.,
1902, Harvard. Professor of Economics and Sociology.

RALPH D. CRAWFORD, A.B., 1905, A.M., 1907, Colorado; Ph.D., 1913,
Yale. Professor of Mineralogy and Petrology.

* Resigned January 14, 1920.

† Resigned June 23, 1919.

- *HARRY A. CURTIS, B.S. (Ch.E.), 1908, A.M., 1910, Colorado; Ph.D., 1914, Wisconsin. Professor of Physical Chemistry.
- FRED G. FOLSOM, A.B., 1895, Dartmouth; LL.B., 1899, Colorado. Professor of Law.
- WILLIAM R. ARTHUR, A.B., 1899, Washburn; LL.B., 1908, Northwestern. Professor of Law.
- CHARLES N. MEADER, A.B., 1906, Colby; M.D., 1910, Harvard. Professor of Medicine.
- *FRANK L. CLAPP, B.S., 1911, Lincoln College; A.M., 1912, Illinois; Ph.D., 1914, Wisconsin. Professor of School Administration.
- ARNOLD J. LIEN, A.B., 1908, A.M., 1909, Minnesota; Ph.D., 1913, Columbia. Professor of Political Science.
- ROBERT C. LEWIS, Ph.B., 1909, Ph.D., 1912, Yale. Professor of Biochemistry.
- HERBERT S. HADLEY, A.B., 1892, Kansas; LL.B., 1894, LL.D., 1909, Northwestern; LL.D., 1910, Missouri. Professor of Law.
- WHITNEY C. HUNTINGTON, B.S. (C.E.), 1910, C.E., 1912, M.S., 1913, Colorado. Professor of Civil Engineering.
- CHARLES S. SPERRY, A.B., B.S. (C.E.), 1911, C.E., 1915, Colorado. Professor of Engineering Mathematics.
- JAY W. WOODROW, A.B., 1907, Drake; A.B., 1910, Oxford; Ph.D., 1913, Yale. Professor of Physics.
- †EDWIN W. PATTERSON, A.B., 1909, LL.B., 1911, Missouri. Professor of Law.
- CHARLES M. GRUBER, A.B., 1911, A.M., 1912, Kansas; Ph.D., 1914, Harvard. Professor of Physiology and Pharmacology.
- IVAN E. WALLIN, B.S., 1905, Iowa; A.M., 1908, Nebraska; Sc.D., 1915, New York University. Professor of Anatomy.
- GEORGE F. REYNOLDS, Ph.B., 1898, Lawrence College; Ph.D., 1905, Chicago. Professor of English Literature.
- FRANK WILBUR CHACE, Mus.Doc., 1905, Regents of the University of the State of New York. Acting Professor of Music.
- OSCAR M. GILBERT, M.D., 1898, Barnes Medical School. Associate Professor of Medicine.

* Resigned October 10, 1919.

† Resigned March 9, 1920.

- C. HENRY SMITH, Ph.B., 1899, Brown. Associate Professor of Bibliography.
- CARL C. ECKHARDT, Ph.B., 1902, Ohio State; A.M., 1904, Michigan; Ph.D., 1908, Cornell. Associate Professor of History.
- FRANK S. BAUER, B.S. (M.E.), 1911, Illinois; M.E., 1915, Colorado. Associate Professor of Mechanical Engineering.
- PHILIP G. WORCESTER, A.B., 1909, A.M., 1911, Colorado. Associate Professor of Geology.
- FRANK G. ALLEN, B.S. (M.E.), 1901, Illinois. Associate Professor of Engineering Drawing.
- IVAN C. CRAWFORD, B.S. (C.E.), 1912, C.E., 1915, Colorado. Associate Professor of Civil Engineering.
- GEORGE H. LIGHT, A.B., 1899, A.M., 1900, Princeton; Ph.D., 1916, Yale. Associate Professor of Mathematics.
- THOMAS MAITLAND MARSHALL, B.L., 1900, Michigan; M.L., 1910, Ph.D., 1914, California. Associate Professor of History.
- OSCAR A. RANDOLPH, B.S., 1911, Missouri School of Mines; M.S., 1913, Ph.D., 1916, Illinois. Associate Professor of Physics.
- SIEBELT L. SIMMERING, B.S. (M.E.), 1910, Colorado; M.S., 1913, Illinois; M.E., 1916, Colorado. Associate Professor of Steam and Gas Engineering.
- W. CLINTON DU VALL, B.S. (E.E.), 1912, Colorado. Associate Professor of Electrical Engineering.
- CARLON GILLASPIE, M.D., 1905, Colorado. Associate Professor of Anatomy.
- FRANK E. E. GERMANN, A.B., 1911, Indiana; Dr. ès Sc., 1914, University of Geneva, Switzerland. Associate Professor of Chemistry.
- JONTA BOEN MARCELLUS, B.S. (C.E.), 1904, Kansas. Associate Professor of Civil Engineering.
- S. ANTOINETTE BIGELOW, A.B., 1893, Wellesley; A.M., 1910, Columbia. Assistant Professor of English Literature.
- *MAX M. ELLIS, A.B., 1907, A.M., 1908, Ph.D., 1911, Indiana; Sc.D., 1914, Vincennes. Assistant Professor of Biology.
- WILLIAM F. BAUR, Ph.B., 1893, Michigan. Assistant Professor of Germanic Languages.

* Resigned June 23, 1919.

PAUL M. DEAN, A.B., 1908, A.M., 1911, Colorado; Ph.D., 1916, Illinois. Assistant Professor of Chemistry.

WALTER F. MALLORY, B.S. (M.E.), 1914, Colorado. Assistant Professor of Mechanical Engineering.

*PHILIP B. McDONALD, B.S., E.M., 1910, Michigan College of Mines. Assistant Professor of Engineering English.

FRANCIS WOLLE, A.B., 1911, Pennsylvania; A.M., 1916, Colorado. Assistant Professor of English Literature.

IRENE P. McKEEHAN, A.B., 1903, Minnesota; A.M., 1917, Colorado. Assistant Professor of English.

ELIZA G. WILKINS, A.B., 1900, Wellesley; A.M., 1904, Ph.D., 1916, Chicago. Assistant Professor of Classics.

EDWIN B. PLACE, A.B., 1913, A.M., 1916, Colorado; Ph.D., 1919, Harvard. Assistant Professor of Romance Languages.

W. OTTO BIRK, A.B., 1914, Wabash College; A.M., 1917, Cincinnati. Assistant Professor of Engineering English.

CHARLES F. POE, A.B., 1911, A.M., 1911, Ph.C., 1914, B.S. (Phar.), 1914, Colorado. Instructor in Chemistry.

CHARLES M. McCORMICK, B.S. (E.E.), 1907, E.E., 1912, Iowa State College. Instructor in Electrical Engineering.

GLADYS C. CURTIS, A.B., 1914, A.M., 1916, Colorado. Instructor in Education.

OLIN INGRAHAM, Ph.B., 1904, Wesleyan; A.M., 1905, Columbia. Instructor in Economics.

WAYNE S. BEATTIE, B.S. (M.E.), 1917, Colorado. Instructor in Mechanical Engineering.

MERVIN S. COOVER, E.E., 1914, Rensselaer Polytechnic Institute. Instructor in Electrical Engineering.

MAURICE KATZMAN, M.D., 1919, Colorado. Instructor in Bacteriology.

GRADUATE COMMITTEE

OLIVER C. LESTER, Dean.

FRANCIS RAMALEY, Secretary.

ARNOLD J. LIEN.

MILO G. DERHAM.

HERBERT S. EVANS.

* Resigned June 23, 1919.

GENERAL STATEMENT

GENERAL REQUIREMENTS

ADMISSION.—Graduates of the University of Colorado will be admitted to the Graduate School upon application.

Graduates of other colleges and scientific schools maintaining standards equal and similar to those of the University of Colorado will be admitted upon presentation of a certificate of graduation and the payment of the matriculation fee. A student from another institution should first submit his credits to the Registrar for rating.

A student who lacks not more than ten undergraduate credit-hours of completing the requirements for the bachelor's degree may be enrolled in the Graduate School for enough work to complete his schedule.

A graduate who wishes to work toward a master's degree in summer quarters should apply for admission to the Graduate School at or preferably before the beginning of the first summer quarter.

Admission to the Graduate School will not be considered as equivalent to candidacy for a degree. A graduate student who wishes to become a candidate for a degree must make special application at the time and in the manner prescribed under the requirements for the degree sought.

SELECTION OF WORK.—A major subject of study should be chosen by each graduate student in conference with the Dean of the Graduate School and the minor subjects in conference with the professor in charge of the major subject. A subject chosen as a minor shall be logically related to the major subject. In case the Dean and the major professor disagree as to the grouping of subjects the question shall be decided by the Graduate Committee.

All work offered for credit toward an advanced degree must be chosen from courses of graduate rank and at least one-half must be done in classes primarily for graduates. A graduate who chooses courses exclusively of undergraduate rank will not be enrolled in the Graduate School.

TUITION AND FEES.—Graduate students in residence pay no tuition except in the Summer Quarter and in the Schools of Medicine and Law. The fees to be paid depend largely upon the nature of the work chosen. A detailed statement regarding fees in the regular session may be found on pages 34 to 37, inclusive; fees in the Summer Quarter on page 274; fees in the Extension Division on pages 286, 288.

RESIDENCE AND ADVANCED STANDING.—The Graduate Committee may allow credit for work done in other universities, but, in general, at least one full year of residence at the University of Colorado will be required for each higher degree. A year's residence means that a student is located at the University not later than ten days after the beginning of a quarter and gives his undivided attention to academic work equivalent to fifteen hours per week for three quarters.

With the approval of the Dean of the Graduate Faculty and of the department concerned, work of graduate rank given to graduate students in extension classes conducted by resident members of the faculty may be considered as work done in residence.

The requirement as to residence for a master's degree may be met by attendance during three full summer quarters.

A graduate student who has done satisfactory work in residence during one Summer Quarter may satisfy the further residence requirements as follows. During not less than two terms in two successive summer quarters he must pursue in residence a course of advanced study arranged and approved by the department of the University in which his major subject lies. During the included two years, between the first and third of these summer quarters, while not in residence at the University, he must pursue through the Extension Division, work in continuation of, or collateral to, this major subject, to the extent of fifteen credit-hours.

The requirement of residence during a summer quarter before graduate work is permitted under this plan may be waived, with the consent of the department involved, in the case of graduates of this University or of graduate students in Extension classes conducted by members of the University Faculty. However, this does not excuse the candidate from residence at the University during at least four terms each consisting of half a quarter.

A graduate student who is an assistant in the University may

receive credit for a year's residence, provided his duties do not amount to more than one-half of the regular schedule, and provided, further, that he obtains graduate credit of not less than six hours each quarter and a total credit during the year of not less than twenty-seven hours.

An instructor on full time or an assistant in more than half time, who is a graduate student, may satisfy the residence requirement of one year in two years, providing he obtains graduate credit of not less than three hours each quarter and a total credit during the two years of not less than twenty-seven hours.

Credit will not be granted for work done *in absentia* except (1) to candidates for the degree Doctor of Ophthalmology; and (2) for a limited amount of work toward a master's degree, in connection with the Extension Division as explained above.

THE DEGREE MASTER OF ARTS OR MASTER OF SCIENCE

APPLICATION FOR ADMISSION TO CANDIDACY

A graduate student who wishes to become a candidate for a master's degree should make application after January 1 and before March 1 of the year in which he expects to finish the required work regardless of whether the work is done during the regular year or in summer quarters. This application must be on a blank form furnished at the office of the Dean of the Graduate School and should contain all the information there called for. It must be accompanied by a statement signed by the professor in charge of the major subject certifying that satisfactory work is being done in both major and minor subjects and approving the application for candidacy.

A graduate student in the field of Science may become a candidate for either degree, Master of Arts or Master of Science, depending upon whether he places emphasis upon the broad philosophical foundations and purely scientific aspects of his work or upon its applied aspects. The degree to be awarded will be decided by the Graduate Committee on application by the candidate and recommendation by the major professor.

A graduate student holding the degree B.S. in Engineering should apply for the degree Master of Science.

The Graduate Committee will pass upon the application as soon as practicable and in any case not later than the first week of the third quarter.

REQUIREMENTS IN ARTS AND SCIENCE

AMOUNT AND NATURE OF WORK.—The minimum requirement for either degree is one full year devoted to study equivalent to not less than fifteen credit-hours per quarter or a total of not less than forty-five credit-hours.

Although the amount of work is specified in credit-hours this does not mean merely another year of undergraduate class exercises. The candidate is expected to do a different type of work and to show not only scholarly attainment but some degree of initiative and power of independent thought.

ARRANGEMENT AND DISTRIBUTION OF WORK.—Studies leading to a master's degree must be divided between two subjects known as the major subject and the minor subject. In special cases a second minor subject may be permitted. The first minor subject must consist of study equivalent to not less than nine credit-hours, and must be in a different department from that of the major subject. A department is understood to mean a division of studies under the charge of a head professor. The choice of the minor subject must be approved by the professor in charge of the major work.

A student who intends to enter the Summer Quarter, and who wishes to work toward a master's degree, should communicate early in the spring with a resident professor in charge of the major subject and should consult with the instructor in charge of the major subject in the Summer Quarter before registering for courses.

LANGUAGES.—Such knowledge of ancient and modern languages as may be deemed necessary by the professor in charge of the major subject is required of a candidate.

THESIS.—A thesis that counts for not less than six nor more than twelve of the total of forty-five credit-hours must be written under the direction of the professor in charge of the major subject, and must be finished and submitted for his approval not later than thirty days before the time at which the degree is to be conferred. Two copies (or more at the discretion of the major professor) printed or typewritten and bound, shall be placed in the University Library before the diploma is delivered.

EXAMINATIONS.—The written examinations of each quarter shall be taken upon such subjects as are pursued in class. On completion

of the required work there shall be held (a) an examination on all work presented which was done during former years; (b) such additional examinations upon other subjects, upon the thesis, and upon the work of the previous quarters of the year as each instructor may require.

The final examination is oral or oral and written, the oral examination being conducted in the presence of a committee chosen by the Dean and the departments concerned. In the case of candidates in the Summer Quarter, two members of this committee shall be professors from the regular faculty of the University of Colorado.

REQUIREMENTS IN ENGINEERING

AMOUNT AND NATURE OF WORK.—A candidate for the degree Master of Science shall devote at least one full year to study equivalent to not less than fifteen credit-hours per quarter, or a total of not less than forty-five credit-hours. However, the candidate is expected to study subjects and not class assignments and to show not only considerable attainment in the field of science, but some degree of initiative and ability to do independent work.

A candidate for the degree Master of Science in Sanitary Engineering must have included in his previous work courses in Elementary Bacteriology, Water Supply, Sewerage, and Structural Engineering.

DISTRIBUTION OF WORK.—The student must choose a major subject to occupy one-half his time from the graduate courses offered in the field in which he received his bachelor's degree. The other half of his work may be chosen from other branches of engineering or from allied fields in pure science. This choice, however, must have the approval of the major professor.

THESIS.—A thesis which counts for not less than nine nor more than fifteen of the total of forty-five credit-hours must be prepared under the supervision of the professor in charge of the major subject and shall be submitted for his approval not later than thirty days before the time at which the degree is to be received.

The thesis in form shall comply with the specifications adopted by the faculty of the College of Engineering for the bachelor's thesis. Two copies of the thesis, printed or typewritten and bound, shall be placed in the University Library before the diploma is conferred.

EXAMINATIONS.—The requirements as to examinations are the same as those in Arts and Science.

THE DEGREE ENGINEER

GENERAL REQUIREMENTS.—Following the degree B.S. in engineering, candidates who fulfill the requirements outlined below may receive the degree Civil Engineer, Electrical Engineer, or Mechanical Engineer, depending upon the nature of the undergraduate course. These degrees are the professional second degrees as distinguished from the academic second degree, Master of Science, granted for work in residence. They are conferred only for proved ability to plan and direct professional work or original investigation in the field of engineering and in accordance with one of the following plans:

1. After not less than four years of successful professional practice, at least two of which must have been spent in responsible charge of the design, construction or operation of engineering works, and the submission of a satisfactory thesis.

2. After the degree Master of Science from this University, not less than two years of successful professional practice at least one of which must have been spent in responsible charge of engineering work, and the submission of a satisfactory thesis.

3. Graduates of other institutions, with the degree B.S. in engineering following an approved four-year course, must spend not less than one academic year in resident graduate study at this university. This must be preceded or followed by not less than two years of successful professional practice at least one of which must be spent in a responsible position. An approved thesis must also be submitted.

The successful teaching of engineering subjects may be regarded as practical experience except that a candidate must have had at least one year of successful practical work in a responsible position or must have proved his ability to plan and carry through original investigation in applied science.

APPLICATION FOR CANDIDACY.—An application for admission to candidacy must be filed with the Dean of the Graduate School, on a blank form provided for that purpose, not later than November 1 of the year preceding the Commencement at which the degree is ex-

pected. At the same time the applicant must file with the Dean of the College of Engineering, as chairman of the special committee in charge, a detailed statement of his professional experience and study. Not later than December 15 following he must submit, for approval by the committee in charge, an outline of his proposed thesis. Upon favorable recommendation regarding his thesis and his professional experience the applicant will be admitted to candidacy by the Graduate Committee. If, however, the candidate does not complete the requirements within two years his name will be dropped from the list of candidates.

THESIS.—An original thesis giving evidence of high professional attainments and general fitness to receive the degree sought must be submitted not later than May 1 for the approval of the committee in charge. The thesis in form shall comply with the specifications adopted by the Faculty of the College of Engineering for all theses. If approved, at least two copies printed or typewritten and bound, shall be deposited in the University Library before the diploma is conferred.

THE DEGREE DOCTOR OF OPHTHALMOLOGY

PRELIMINARY REQUIREMENTS.—The professional degree Doctor of Ophthalmology will be granted to students who fulfill the requirements outlined below. Before entering upon the work for the degree the student must have met the following preliminary requirements:

1. Graduation at least one year previously from a Class A Medical School. Graduates of schools not in Class A will be admitted to the work for the degree only after the fulfillment of further requirements prescribed by the special committee in charge.

2. At least one year spent in one of the following ways: (a) as an interne in an approved general hospital; (b) as an interne in an approved ophthalmic hospital; (c) in clinical work in ophthalmology under an approved chief either in a medical school clinic or in a private clinic; (d) as an assistant in histology and pathology or in laboratory physics.

NATURE AND ARRANGEMENT OF WORK.—After meeting the preliminary requirements a student who expects to become a candidate for the degree must complete satisfactorily the following program of professional and academic work:

1. One year of clinical ophthalmology spent either (a) as an interne in an approved ophthalmic hospital; or (b) as an assistant in a public ophthalmic clinic of not less than six hours per week.

Either (a) or (b) is to be accompanied by an outlined course of reading.

2. Summer Course at Denver. This is a course of six weeks in ophthalmology with full time in clinical laboratory, and lecture work, concluding with formal examinations in all work done. During this time the subject and an outline of the proposed thesis must be submitted for the approval of the head of the department.

3. Advanced Optics. The three weeks immediately following are devoted to an intensive advanced course dealing with selected subjects of special interest in physical optics and with the theory and practice of optical instruments. It will be given partly at Denver and partly at Boulder, and is required of all applicants for the degree who can not furnish evidence of equivalent training.

4. The academic year following 2 and 3 is to be devoted to clinical ophthalmology and to work on the thesis, the former to be pursued either (a) as an interne in an approved ophthalmic hospital; or (b) as an assistant in an approved public ophthalmic clinic of not less than six hours per week; or (c) as a full time assistant in an approved private clinic.

Either (a), (b), or (c) is to be accompanied by an outlined course of reading.

APPLICATION FOR CANDIDACY.—During the time devoted to Course 3 above a student who wishes to receive the degree must file with the Dean of the Graduate School, on a blank form provided for that purpose, an application for admission to candidacy. At the same time the applicant must file with the head of the Department of Ophthalmology, as chairman of the committee in charge, a detailed statement of his professional experience and study with such evidence as may be necessary to show that he has met the specified requirements. Upon favorable recommendation regarding his thesis and his general record the applicant will be admitted to candidacy by the Graduate Committee. If, however, the candidate does not complete the requirements within five years his name will be dropped from the list.

THESIS.—An original thesis giving evidence of high professional attainments must be submitted to the chairman of the committee in charge not later than April 15 preceding the Commencement at which the degree is expected. If approved by the committee, at least two copies printed or typewritten and bound shall be deposited in the University Library before the diploma is conferred.

ADVANCED COURSE AND EXAMINATION.—Three weeks before the Commencement at which he expects to receive the degree the candidate shall report in Denver to the head of the department for an intensive advanced course in ophthalmology and for a thorough test in practical work in the clinic.

During this time the candidate shall also appear before a committee chosen by the Dean of the Graduate School and the head of the department, for the purpose of defending his thesis and of standing examinations upon clinical ophthalmology, including diagnosis, therapeutics, and operative technique.

THE DEGREE DOCTOR OF PHILOSOPHY

ADMISSION TO CANDIDACY.—A graduate student who has been admitted to the Graduate School and who wishes to become a candidate for the degree Doctor of Philosophy, may make application at any time after admission, provided that he shall not apply later than eight months before the time at which he expects to receive the degree. The form of application is the same for a Master's degree.

AMOUNT, DISTRIBUTION AND NATURE OF WORK.—The minimum requirement for the degree Doctor of Philosophy is not less than three full years devoted to study equivalent to not less than ninety credit-hours, and to the preparation of a thesis.

Studies leading to the degree must be divided into three groups, known as the major subject, the first minor subject and the second minor subject. An amount of work equivalent to at least twenty-two credit-hours shall be devoted to the first minor subject and the equivalent of twelve hours to the second. Each subject shall be in a different department from the others.

However, the degree shall not be granted for the completion of any specified period of residence and number of hours study.

It will be conferred only for high attainments in general and marked ability in a special field, including particularly power in original investigation, shown by a thesis.

Part of the time required may be spent at some other university of approved standing, provided the last year of three consecutive quarters is spent at the University of Colorado.

LANGUAGE REQUIREMENT.—A reading knowledge of both French and German, with special reference to the candidate's field of study, is required at least one year before the time at which he expects to finish his work for the degree. Upon this requirement the candidate must satisfy a committee consisting of the heads of the French and the German departments and of the professor in charge of the major subject. A knowledge of other languages also may be required if demanded by the major professor.

THESIS.—A thesis, showing power in original investigation, shall be written upon some subject approved by a committee consisting of the heads of the three departments concerned. It must be finished and submitted in typewritten form at least sixty days before the time at which the degree is to be conferred, and must be approved by the committee before the candidate can proceed further toward the degree. If the thesis is approved three copies (or more at the discretion of the committee), printed or typewritten and bound shall be placed in the University Library before the diploma is delivered.

EXAMINATIONS.—The regular written examinations on all subjects taken in course, may be required at the discretion of each instructor, but in any case, a preliminary and a final examination are required. The preliminary examination is oral or oral and written, the oral examination being conducted by all instructors concerned, in the presence of a committee consisting of the heads of the departments in which the major and minor subjects lie, and is held at least six months before the time at which the candidate expects to receive the degree.

The final examination is oral and is conducted in the presence of a committee consisting of the heads of the departments interested and two other professors appointed by the Dean of the Graduate School, and in the presence of visitors.

ORDER OF DESCRIPTION OF COURSES

Few of the courses outlined below are available at any one time, but each department usually offers one or more advanced courses each quarter. Courses not scheduled here may be arranged to meet the needs of students of ability. Students intending to take work leading toward an advanced degree will find advantage in consulting with the Dean and the head of the department concerned as early as the middle of the previous quarter.

Biochemistry.	History.
Biology.	Law.
Chemistry.	Mathematics.
Civil Engineering.	Mechanical Engineering.
Classics.	Music.
Education.	Ophthalmology.
Electrical Engineering.	Philosophy.
English Language.	Physics.
English Literature.	Psychology.
Geology, Mineralogy and Geography.	Romance Languages and Literatures.
Germanic Languages and Literatures.	Social Science.

DESCRIPTION OF COURSES*

BIOCHEMISTRY†

PROFESSOR LEWIS:

3-4. BIOCHEMISTRY.

For Graduates Only.

5. CHEMISTRY OF BLOOD.
6. BIOCHEMICAL PREPARATIONS.
7. BIOCHEMICAL SEMINAR.
8. RESEARCH IN BIOCHEMISTRY.

* Graduate courses that may be elected by undergraduates also are listed under the same numbers as in the College of Liberal Arts. See page 62. Courses for graduates only are described here.

† For description of these courses see under School of Medicine.

BIOLOGY

I. GENERAL BIOLOGY

PROFESSORS COCKERELL AND RAMALEY:

4. HISTORY OF BIOLOGY.
5. GENETICS.
6. PLANKTONOLOGY.
7. MICROBIOLOGY.
8. PUBLIC HEALTH PROBLEMS.
9. TEACHERS' COURSE IN BIOLOGY.

For Graduates Only.

12. SPECIAL PROBLEMS.

Genetics, History of Biology, Biological Pedagogics.

II. BOTANY

PROFESSOR RAMALEY AND MR. HANSON:

4. ADVANCED ECONOMIC BOTANY.
5. BOTANY OF COLORADO (PLANT TAXONOMY).
6. PLANT PHYSIOLOGY.
7. PLANT ECOLOGY.
8. FOREST BOTANY.
9. ADVANCED INDUSTRIAL BOTANY.
11. PLANT ANATOMY.
12. MYCOLOGY.
13. ECOLOGY AND TAXONOMY. (Summer quarter at Tolland.)

For Graduates Only.

14. SPECIAL PROBLEMS.

Plant Anatomy, Agrostology, Ecology, Floristics, Areal Botany, Plant Genetics, Gametophytic and Sporophytic Embryology.

Research work in Ecology is especially provided at the Summer Mountain Laboratory at Tolland, Colorado. Prospective students should consult the Summer Quarter announcement and communicate with Professor Francis Ramaley, Boulder, Colorado, who is in charge.

III. ZOOLOGY

PROFESSOR COCKERELL AND MISS GREEN:

2. VERTEBRATE ANATOMY.
3. PHYSIOLOGY.
- 5-6. COMPARATIVE MORPHOLOGY.
7. ANIMAL ECOLOGY.
8. CYTOLOGY.
9. ENTOMOLOGY.
12. FIELD ZOOLOGY.

For Graduates Only.

13. SPECIAL PROBLEMS.

Taxonomy of Hymenoptera, Coccidæ (scale insects), Paleontomology, Ichthyology, Protozoology, Pond and Stream Zoology, and other topics as opportunity offers.

CHEMISTRY

PROFESSOR EKELEY, ASSOCIATE PROFESSOR GERMANN, ASSISTANT PROFESSOR DEAN, AND MR. POE AND MR. VAN VALKENBURGH:

3. ADVANCED INORGANIC CHEMISTRY.
- 4-5. QUALITATIVE ANALYSIS.
6. QUANTITATIVE ANALYSIS.
7. ORE ANALYSIS.
8. ANALYSIS OF IRON AND STEEL.
9. GAS ANALYSIS.
10. ELEMENTARY ORGANIC ANALYSIS.
11. SANITARY WATER ANALYSIS.
12. MINERAL WATER ANALYSIS.
13. ORGANIC CHEMISTRY.
14. LABORATORY PRACTICE IN ORGANIC PREPARATIONS.
15. PHYSICAL CHEMISTRY. LECTURES.
16. PHYSICAL CHEMISTRY. LABORATORY.
17. ELECTROCHEMICAL ANALYSIS.
18. FOOD ANALYSIS.
19. DRUG ASSAYING. PHARMACOPOEIAL TESTING.
20. DRUG ASSAYING. ORGANIC ANALYSIS.
21. DRUG ASSAYING. ALKALOIDAL ASSAYING.
22. ADVANCED FOOD ANALYSIS.
23. HISTORY OF CHEMISTRY.
25. BIOCHEMISTRY.

26. INDUSTRIAL CHEMISTRY.
27. ADVANCED PHYSICAL CHEMISTRY.

For Graduates Only.

28. GLASS BLOWING. Three quarters. Maximum of two hours credit.
A laboratory course intended to familiarize the research student with the more difficult tasks in making and repairing glass apparatus.

CIVIL ENGINEERING

PROFESSOR HUNTINGTON, ASSOCIATE PROFESSORS CRAWFORD AND MARCELLUS:

For Graduates Only.

101. RAILWAY LOCATION AND CONSTRUCTION.
102. YARDS AND TERMINALS.
104. RAILWAY OPERATION, MANAGEMENT, AND VALUATION.
105. TUNNELS AND CANALS.
110. ADVANCED BRIDGE DESIGN.
111. SWING AND MOVABLE BRIDGES.
112. METALLIC ARCHES.
113. INDETERMINATE STRUCTURES.
114. STEEL OFFICE BUILDING CONSTRUCTION.
115. STEEL MINE AND MILL STRUCTURES.
120. REINFORCED CONCRETE CONSTRUCTION.
130. GENERAL WATER WORKS CONSTRUCTION AND MANAGEMENT.
131. TANKS, STANDPIPES AND RESERVOIRS.
140. SEWAGE PURIFICATION AND DISPOSAL WORKS.
141. GENERAL SEWERAGE DESIGN AND CONSTRUCTION.
150. IRRIGATION ENGINEERING STRUCTURES.
151. IRRIGATION ENGINEERING STUDIES.
152. DAMS AND RESERVOIRS FOR IRRIGATION.
160. ADVANCED HYDRAULICS.
161. ADVANCED APPLIED MECHANICS.

CLASSICS

PROFESSORS HELLEMS AND DERHAM, ASSISTANT PROFESSOR WILKINS, AND MISS CRAIG:

GREEK

6. GREEK HISTORIANS.
Herodotus and Thucydides.

7. PLATO.

Interpretation of the Republic with lectures on Platonism.

8. COMEDY.

Aristophanes, Clouds and Frogs.

9. LYRIC POETS.

Early lyric poets with introduction to Pindar and Bacchylides.

10. PASTORAL POETRY.

Theocritus, Bion, and Moschus.

11. ADVANCED PROSE COMPOSITION.

For Graduates Only.

15. THE TRAGEDIES OF AESCHYLUS.

16. ARISTOTLE, POETICS.

17. HISTORY OF GREEK COMEDY.

18. INTRODUCTION TO GREEK EPIGRAPHY.

19. STUDY OF GREEK DIALECTS FROM INSCRIPTIONS.

20. SEMINAR IN POETS OF ALEXANDRIAN PERIOD.

21. SEMINAR IN EARLY GREEK PHILOSOPHY.

22. SEMINAR IN GREEK RELIGION AND ETHICS.

LATIN

15. LUCRETIVS.

18. MARTIAL.

21. SUETONIUS.

23. ADVANCED LATIN PROSE.

24. GREEK AND ROMAN ARCHÆOLOGY.

25. MINOR LATIN POETS.

A study of the more significant among the minor poets.

For Graduates Only.

26. ROMAN LAW.

(1) Gaii Institutiones Juris Civilis. 3 h.

(2) Elements of Roman Law. 3 h.

27. ROMAN ADMINISTRATION. 3 h.

The development of Roman public institutions in their historical sequence.

28. ROMAN TOPOGRAPHY. 3 h.

The topography of Rome in the historical development of the city.

29. INTERPRETATION OF EARLY LATIN. 3 h.
Selected examples of Early Latin.
30. EPIGRAPHY. 3 h.
Cagnat's Cours d'Epigraphie Latine; Egbert's Introduction;
handling of the Corpus Inscriptionum Latinarum.
31. LATIN MORPHOLOGY. 3 h.
The subject will be approached from the comparative side.
32. LATIN SYNTAX. 3 h.
The subject will be treated comparatively.
33. LATIN PALEOGRAPHY. 3 h.
An introduction to the subject.
34. SEMINAR ON TRAJAN.
A study of the sources for the life and reign of Trajan;
particular stress will be laid on the epigraphical side.
35. TACITUS. 3 h.
A rapid reading course in the Annals with a consideration
of the historical problems raised.
36. PERSIUS. 3 h.
Interpretation of the text; Stoicism in the early Empire.
37. ROMAN PROVINCIAL ADMINISTRATION.
Pliny, Letters, book X; selections from Cicero's correspond-
ence.

EDUCATION

PROFESSORS THOMPSON, COLE AND LIBBY, AND MISS MCFARLAND:

- 2.* COMPARATIVE PSYCHOLOGY.
- 3.* ADVANCED PSYCHOLOGY.
- 4.* PATHOLOGICAL PSYCHOLOGY.
- 5.* EXPERIMENTAL PSYCHOLOGY.
- 6.* EDUCATIONAL PSYCHOLOGY.
- 9.* MENTAL TESTS.
6. PUBLIC SCHOOL PROGRAM OF STUDIES.
7. HISTORY AND PHILOSOPHY OF EDUCATION.
8. SECONDARY EDUCATION.
9. PRINCIPLES OF PRE-SCHOOL EDUCATION.
10. ANTHROPOLOGY.
11. ETHNOGRAPHY.
12. ETHNOLOGY.

* These numbers refer to courses in the Department of Psychology.

13. SOCIAL PSYCHOLOGY.
14. EDUCATION AND SOCIETY.
15. SCHOOL SUPERVISION.
16. PRACTICUM IN EDUCATION.
17. SEMINAR IN EDUCATION.

For Graduates Only.

- 12.* ADVANCED EXPERIMENTAL PSYCHOLOGY.

ELECTRICAL ENGINEERING

PROFESSOR EVANS, ASSOCIATE PROFESSOR DUVALL, AND MR. MCCORMICK
AND MR. COOVER:

For Graduates Only.

101. THEORY OF ALTERNATING CURRENTS.
102. ANALYSIS AND DESIGN OF ALTERNATING CURRENT APPARATUS.
103. ANALYSIS AND DESIGN OF DIRECT CURRENT APPARATUS.
104. DESIGN OF CENTRAL STATIONS AND EQUIPMENT.
105. STANDARDIZATION LABORATORY AND COMMERCIAL ELECTRICAL TESTING.
106. ELECTRICAL ENGINEERING RESEARCH.
107. TELEPHONES AND TELEGRAPH.
108. ELECTRICAL TRANSMISSION OF POWER.
109. ADVANCED ELECTRIC RAILWAY ENGINEERING.
110. ELECTRO-METALLURGICAL INDUSTRIES.
111. ADVANCED ELECTRICAL ENGINEERING LABORATORY.
112. ILLUMINATING ENGINEERING.

ENGLISH LANGUAGE

PROFESSOR McLUCAS:

- 10-11. ANGLO-SAXON.
12. MIDDLE ENGLISH.
13. CHAUCER.
14. SHAKESPEARE.
15. PRE-SHAKESPEREAN DRAMA.

ENGLISH LITERATURE

PROFESSORS REYNOLDS AND McLUCAS, AND ASSISTANT PROFESSORS
BIGELOW, WOLLE, AND MCKEEHAN:

9. THE DRAMA.
10. ENGLISH FICTION.

* These numbers refer to courses in the Department of Psychology.

11. THE RENAISSANCE.
12. THE CLASSICAL PERIOD.
13. NINETEENTH CENTURY POETRY.
14. NINETEENTH CENTURY PROSE.
15. SHAKESPEARE.
16. WORDSWORTH AND COLERIDGE.

Primarily for Graduates.

40. LITERARY PROBLEMS. Fall quarter. 3 h.

The methods of historical criticism, illustrated by articles in the learned periodicals, especially on problems connected with Shakespeare. An introduction to graduate work in English.

41. PRE-SHAKESPEAREAN AND ELIZABETHAN DRAMA. Winter and spring quarters. 3 h.

A reading course with lectures and special reports.

GEOLOGY, MINERALOGY, AND GEOGRAPHY

PROFESSORS GEORGE, HENDERSON, AND CRAWFORD, AND ASSOCIATE
PROFESSOR WORCESTER:

I. GEOLOGY

4. ECONOMIC GEOLOGY.
6. OIL GEOLOGY.
7. GEOLOGIC SURVEYING.
8. ADVANCED GEOLOGY.
9. GEOLOGY OF COLORADO.
10. GEOLOGY CULTURE COURSE.
11. PALEONTOLOGY.

For Graduates Only.

12. RESEARCH GEOLOGY. One, two or three quarters.

The work will be chiefly individual, and will depend largely on the preparation of the student. The vicinity of Boulder, and the State as a whole, offer a wide range of problems for research. The credit allowed will depend upon the time given to the work and the character of the results obtained.

. NOTE—The establishment of the State Geological Survey gives very exceptional opportunities to a limited number of advanced students in geology.

II. MINERALOGY AND PETROLOGY

3. ADVANCED MINERALOGY.
4. FIRE ASSAYING.
5. ADVANCED CRYSTALLOGRAPHY.
6. OPTICAL MINERALOGY.
7. PETROGRAPHY.

For Graduates Only.

8. PETROLOGY. Throughout the year. 2 or 3 h. each quarter.

An advanced course which includes the microscopic study of rocks from typical districts, reading of petrologic literature, and one weekly period for lectures and reports.

9. CHEMICAL MINERALOGY.

Either quantitative-analytic mineralogy or the investigation of special problems involving laboratory and library research may be undertaken by students who have had adequate preparation.

III. GEOGRAPHY

4. ADVANCED PHYSIOGRAPHY.
6. GEOGRAPHY OF EUROPE.

For Graduates Only.

7. PHYSIOGRAPHIC PROBLEMS. Any quarter. Credit will depend upon the time given to the work and the results obtained. Individual work in the field, laboratory, and library.

GERMANIC LANGUAGES AND LITERATURES

PROFESSOR VAN SWERINGEN BAUR, AND ASSISTANT PROFESSOR BAUR:

9. THE GERMAN DRAMA OF THE NINETEENTH CENTURY.
10. ADVANCED COMPOSITION.
12. GOETHE'S FAUST: PARTS I AND II.
13. STUDIES IN THE HISTORY OF THE GERMAN NOVEL.
14. THE GERMAN NOVELLE.
17. THE HISTORY OF GERMAN LITERATURE FROM THE EARLIEST TIMES TO THE TIME OF KLOPSTOCK.
18. THE HISTORY OF GERMAN LITERATURE FROM THE TIME OF KLOPSTOCK TO THE PRESENT.
19. GERMANIC HERO-SAGAS.
20. GERMANIC MYTHOLOGY.

22. POETICS.

24. READING AND INTERPRETATION OF SELECTED GERMAN WORKS ON
SOCIOLOGY AND PHILOSOPHY.*For Graduates Only.*

25. DEUTSCHE AUFSÄTZE. 2 h.

26. DEUTSCHE PHONETIK UND AUSSPRACHE. 2 h.

27. GÖTHIC. Two quarters. 3 h.

Phonology and inflections of Gothic; relation of Gothic to German and English; reading of extracts in Braune's *Gotische Grammatik*.

28. OLD HIGH GERMAN. Three quarters. 3 h.

Braune's *Althochdeutsche Grammatik*, and *Althochdeutsches Lesebuch*.

29. MIDDLE HIGH GERMAN. Three quarters. 2 h.

Paul's *Mittelhochdeutsche Grammatik*; reading of Hartman von Aue's *Der arme Heinrich*.

30. OLD ICELANDIC. Three quarters. 3 h.

Phonology and inflection of Old Icelandic, from Noreen's *Altisländische and Altnorwegische Grammatik*. Reading of Heusler's *Zwei Isländer-Geschichten*.

31. THE EDDA. Three quarters. 3 h.

Gering's Edition of Hildebrand's *Edda Lieder*.

32. EINFÜHRUNG IN DAS STUDIUM DER GERMANISCHEN SPRACHEN.

Two quarters. 3 h.

33. GOETHE SEMINAR. Two quarters. 2 h.

HISTORY

PROFESSOR WILLARD, ASSOCIATE PROFESSORS ECKHARDT AND MARSHALL:

Open to Graduates on Consultation.

10. THE POLITICAL THEORIES OF PLATO AND ARISTOTLE.

11. THE FALL OF THE ROMAN REPUBLIC.

12. THE ROMAN EMPIRE.

13. THE MEDIÆVAL CHURCH AND THE REFORMATION.

14. ENGLISH MEDIÆVAL INSTITUTIONS.

15. THE ITALIAN RENAISSANCE.

18. ADVANCED MODERN EUROPEAN HISTORY.

- 20. THE WESTWARD MOVEMENT.
- 23. RESEARCH COURSE IN THE HISTORY OF THE WEST.
- 25. HISTORIOGRAPHY.

LAW

PROFESSOR FLEMING:

- CONSTITUTIONAL LAW. 7 h.
- IRRIGATION. 3 h.
- MINING LAW. 4 h.
- SALES OF PERSONAL PROPERTY. 4 h.

PROFESSOR ARTHUR:

- PROPERTY. 8 h.
- WILLS. 4 h.
- BILLS AND NOTES. 4 h.
- MORTGAGES. 3 h.

PROFESSOR HADLEY:

- PRIVATE AND MUNICIPAL CORPORATIONS. 8 h.
- PUBLIC UTILITIES. 3 h.

MATHEMATICS

PROFESSOR DELONG AND ASSOCIATE PROFESSOR LIGHT:

- 5. DIFFERENTIAL AND INTEGRAL CALCULUS. As a minor to majors in Science.
- 14. THEORY OF INVESTMENT. As a minor to majors in Economics.
- 6. DIFFERENTIAL EQUATIONS.
- 10. ANALYTIC SOLID GEOMETRY.
- 11. MODERN GEOMETRY.
- 7. LIE THEORY OF DIFFERENTIAL EQUATIONS.
- 16. COMPLEX FUNCTIONS, PROJECTIVE GEOMETRY, AND TRANSCENDENTAL FUNCTIONS.

For Graduates Only.

- 17. HIGHER PLANE CURVES.
- 18. ALGEBRAIC CURVES.
- 19. THEORY OF INVARIANTS.
- 20. DIFFERENTIAL GEOMETRY.
- 21. LEAST SQUARES.
- 22. MATHEMATICAL THEORY OF STATISTICS.
- 23. CALCULUS OF VARIATIONS.

24. CELESTIAL MECHANICS.
25. PERIODIC ORBITS.
26. PARTIAL DIFFERENTIAL EQUATIONS.
27. POTENTIAL THEORY.
28. THEORY OF DETERMINANTS.
29. SERIES.
30. THEORY OF EQUATIONS.
31. INTRINSIC GEOMETRY.

MECHANICAL ENGINEERING

PROFESSOR HUNTER, AND ASSOCIATE PROFESSORS BAUER
AND SIMMERING:

For Graduates Only.

101. ADVANCED MACHINE DESIGN.
102. GRAPHICS AND KINEMATICS.
103. ADVANCED STEAM ENGINEERING.
104. EXPERIMENTAL ENGINEERING.
105. PNEUMATICS.
106. RAILWAY MECHANICAL ENGINEERING.
107. MECHANICAL REFRIGERATION.
108. ADVANCED GAS ENGINES.

MUSIC

ACTING PROFESSOR CHACE:

3. COUNTERPOINT.
4. CANON AND FUGUE.
5. COMPOSITION AND ORCHESTRATION.
6. HISTORY OF MUSIC.
7. AESTHETICS AND PHILOSOPHY OF MUSIC.

OPHTHALMOLOGY*

For Graduates Only.

1. SPECIAL ANATOMY AND HISTOLOGY, EMBRYOLOGY AND ANOMOLIES
OF THE EYE.
2. PATHOLOGY, SYSTEMATIC AND LABORATORY.
3. PHYSIOLOGICAL OPTICS, REFRACTION AND OCULAR MOVEMENTS.

* For description of courses see special bulletin of the Department of Ophthalmology.

4. METHODS OF OPHTHALMIC DIAGNOSIS, OPHTHALMOSCOPIC DIAGNOSIS.
5. DAILY UNIVERSITY EYE CLINIC.
6. SPECIAL LECTURES ON RELATIONS OF EYE DISEASES TO GENERAL MEDICINE AND SURGERY.
7. ADVANCED OPTICS.
8. ADVANCED COURSE IN OPHTHALMOLOGY.

PHILOSOPHY

PROFESSOR LIBBY AND MISS UNDERHILL:

All candidates must get from the Department of Philosophy a written statement of specific requirements at the beginning of each year. The thesis-subject may be chosen from any branch of Philosophy.

For A.M.

For major, high grades in undergraduate courses and advanced readings in sources of Philosophy, and in Metaphysics; for minor, a thorough knowledge of the whole history of Philosophy.

For Ph.D.

For major, courses for A.M. major, with further advances in history of Philosophy and in special disciplines. Candidate must be able to read German and French at sight. For minor, advanced history of Philosophy only, including special knowledge of two philosophers.

PHYSICS

PROFESSORS LESTER AND WOODROW, AND ASSOCIATE
PROFESSOR RANDOLPH:

For Advanced Undergraduates and Graduates.

3. ANALYTICAL MECHANICS—STATICS.
4. ANALYTICAL MECHANICS—DYNAMICS.
6. THEORY OF ELECTRICITY AND MAGNETISM I.
7. THEORY OF ELECTRICITY AND MAGNETISM II.
8. ELECTRICAL MEASUREMENTS I.
10. PROPERTIES OF MATTER.
18. VECTOR ANALYSIS.
42. INTRODUCTION TO MATHEMATICAL ASTRONOMY.

Primarily for Graduates.

100. KINETIC THEORY OF GASES. Winter quarter. 3 h. Lectures and recitations.

The important physical properties of gases will be considered from the viewpoint of the kinetic theory of matter.

Prerequisite: Courses 4, 11, and calculus; Course 6 advised.

101. CONDUCTION OF ELECTRICITY THROUGH GASES. Winter quarter. 4 h.

Lectures and recitations.

A course dealing with the properties of ions and electrons in their relation to the passage of electricity through gaseous media.

Prerequisite: Courses 4, 6, 7, and calculus.

102. ADVANCED ANALYTICAL MECHANICS. Winter and spring quarters. 3 h.

Prerequisite: Courses 3, 4, calculus and differential equations.

103. RADIOACTIVITY. Autumn quarter. 3 h.

Prerequisite: Courses 1, 2, 6, 101, and calculus.

104. MEASUREMENTS IN RADIOACTIVITY. Winter quarter. Two three-hour laboratory periods. 2 h.

105. ELECTRON THEORY. Winter and spring quarters. 3 h.

A course of lectures and reading dealing with the evidence which has led to the discovery of the electron, and to the idea of the corpuscular structure of matter. The role played by these ideas in modern physics will be considered at length.

Prerequisite: Permission of the instructor.

106. ADVANCED MATHEMATICAL PHYSICS. Three quarters. Hours and credit to be arranged.

A course dealing with certain phases of theoretical physics, involving not only a somewhat extensive knowledge of physics, but also considerable mathematical equipment.

Prerequisite: Permission of the instructor.

107. RESEARCH AND JOURNAL CLUB. An organization composed of all instructors, graduate and advanced undergraduate stu-

dents in the departments of physics and chemistry, meeting once a week from 4:00 to 6:00 for the discussion of recent research.

PSYCHOLOGY

PROFESSORS COLE AND THOMPSON, AND ASSOCIATE PROFESSOR GILLASPIE:

2. COMPARATIVE PSYCHOLOGY.
3. ADVANCED PSYCHOLOGY.
4. PATHOLOGICAL PSYCHOLOGY.
5. EXPERIMENTAL PSYCHOLOGY.
6. EDUCATIONAL PSYCHOLOGY.
7. THE PSYCHOLOGY OF GRAMMAR-SCHOOL AND HIGH-SCHOOL SUBJECTS.
10. SOCIAL PSYCHOLOGY. (EDUCATION 13.)
11. ANATOMY OF THE CENTRAL NERVOUS SYSTEM.

For Graduates Only.

12. ADVANCED EXPERIMENTAL PSYCHOLOGY.

Students in this course will be expected to carry on systematic investigations in special problems.

ROMANCE LANGUAGES

PROFESSOR AYER, ASSISTANT PROFESSOR PLACE, AND MISS SNYDER:

FRENCH

For Graduates and Advanced Undergraduates.

4. SEVENTEENTH CENTURY FRENCH.* Autumn quarter. 3 h. Not given in 1920-1921.
5. SEVENTEENTH CENTURY FRENCH.* Winter quarter. 3 h. Not given in 1920-1921.
6. SEVENTEENTH CENTURY FRENCH.* Spring quarter. 3 h. Not given in 1920-1921.
7. EIGHTEENTH CENTURY FRENCH.* Autumn quarter. 3 h.
8. EIGHTEENTH CENTURY FRENCH.* Winter quarter. 3 h.
9. EIGHTEENTH CENTURY FRENCH.* Spring quarter. 3 h.
10. NINETEENTH CENTURY FRENCH.* Autumn quarter. 3 h. Not given in 1920-1921.

* Given in alternate years.

11. NINETEENTH CENTURY FRENCH.* Winter quarter. 3 h. Not given in 1920-1921.
12. NINETEENTH CENTURY FRENCH.* Spring quarter. 3 h. Not given in 1920-1921.
13. SIXTEENTH CENTURY FRENCH.* Autumn quarter. 3 h.
14. THE ORIGINS AND DEVELOPMENT OF THE FRENCH DRAMA UP TO THE PRESENT TIME.* Winter quarter. 2 h.
15. THE ORIGIN AND DEVELOPMENT OF THE NOVEL IN FRANCE.* Spring quarter. 2 h.

Primarily for Graduates.

16. OLD FRENCH. Three quarters. 3 h. Usually given in alternate years.

Phonology, morphology, and literature to the fourteenth century.

17. MIDDLE FRENCH. Three quarters. 2 h. Not given in 1920-1921.
A study of the language and the literature of the fourteenth and fifteenth centuries. Special attention is given to the Cent Ballades and to Francois Villon.
18. HISTORICAL FRENCH SYNTAX. Three quarters. 2 h. Not given in 1920-1921.

A research course dealing with special problems in French syntax. A considerable amount of reading is required, together with a term-paper.

SPANISH

For Graduates and Advanced Undergraduates.

4. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Autumn quarter. 3 h. Not given in 1920-1921.
5. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Winter quarter. 3 h. Not given in 1920-1921.
6. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Spring quarter. 3 h. Not given in 1920-1921.
7. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Autumn quarter. 3 h.
8. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Winter quarter. 3 h.
9. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Spring quarter. 3 h.

* Given in alternate years.

Primarily for Graduates.

11. OLD SPANISH. Three quarters. 3 h. Usually given in alternate years. Not given in 1920-1921.
Phonology, morphology, and literature to the fifteenth century.
12. THE HISTORY OF PROSE FICTION IN ITALY AND SPAIN FROM THE BEGINNINGS TO THE SEVENTEENTH CENTURY. Three quarters. 2 h. Not given in 1920-1921.

ITALIAN

For Graduates and Advanced Undergraduates.

2. DANTE. Three quarters. 3 h. Usually given in alternate years. Not given in 1920-1921.
The Divine Comedy; the minor works; Dante's life and times.
- 3-5. GENERAL VIEW OF ITALIAN LITERATURE. Three quarters. 3 h. Usually given in alternate years.

For Graduates Only.

6. OLD ITALIAN. 2 h. Not given in 1920-1921.
Comparative Romance Philology with special reference to Italian. Monaci's *Crestomazia dei primi secoli*.
7. COMPARATIVE ROMANCE SYNTAX. 3 h. Usually given in alternate years.
Comparative Romance syntax with special reference to Italian.
8. Cf. Course 12 under *Spanish*.

PORTUGUESE

For Graduates Only.

1. PORTUGUESE. Three quarters. 2 h. Usually given in alternate years.
Language and literature. R. Foulché-Delbosc, *Grammaire Portugaise*. A. Bell, *Studies in Portuguese Literature*. A quick course in grammar with much sight reading.
Prerequisite: French, Spanish, Italian.

PROVENÇAL

For Graduates Only.

1. OLD PROVENÇAL. Three quarters. 3 h. Usually given in alternate years. Not given in 1920-1921.
Phonology, morphology, and literature.

SOCIAL SCIENCE

PROFESSORS BUSHEE AND LIEN, AND MR. INGRAHAM:

I. ECONOMICS

8. STATISTICS.
9. LABOR PROBLEMS.
11. MONEY AND BANKING.
12. TRANSPORTATION.
13. TAXATION.
14. CORPORATIONS.
15. LIFE INSURANCE.
17. TRUSTS.
18. BUSINESS ORGANIZATION AND SCIENTIFIC MANAGEMENT.
20. PRINCIPLES OF ADVERTISING.

For Graduates Only.

21. HISTORY AND CRITICISM OF ECONOMIC THEORIES. Autumn quarter. 2 h.

Lectures, reading, reports.

The lectures will deal with the economic ideas of Plato and Aristotle; the influence of the Roman Law; the Canonists; Mercantilists; Physiocrats; Adam Smith; Ricardo; Malthus; John Stuart Mill; the Historical School; Jevons and the Austrian School. The aim is not only to study the content of economic theory, but also to exhibit theory in the light of political and social conditions.

22. SEMINAR IN ECONOMICS. Three quarters. 2 h.

II. SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY.
2. PROBLEMS IN SOCIOLOGY.
3. SOCIALISM.
5. ADVANCED THEORY OF SOCIOLOGY.

For Graduates Only.

7. SEMINAR IN SOCIOLOGY. Three quarters. 2 h.

III. POLITICAL SCIENCE

3. COMPARATIVE EUROPEAN GOVERNMENT.
4. MUNICIPAL GOVERNMENT.
5. POLITICAL PARTIES AND PARTY PROBLEMS.
6. CONSULAR AND DIPLOMATIC SERVICE.
7. INTERNATIONAL LAW.
8. MUNICIPAL PROBLEMS.

SCHOOL OF MEDICINE

FACULTY*

GEORGE NORLIN, Ph.D., President of the University.

CHARLES N. MEADER, A.B., M.D., Dean; Professor of Medicine and Head of Department.

WILLIAM P. HARLOW, A.B., M.D., Dean, Emeritus.

ROSS C. WHITMAN, A.B., M.D., Secretary of the Boulder Division; Professor of Pathology and Head of Department.

LUMAN M. GIFFIN, M.D., Professor of Surgery, Emeritus.

†THOMAS E. TAYLOR, A.B., M.D., Professor of Obstetrics, Emeritus.

WILLIAM B. CRAIG, M.D., Professor of Surgery, Emeritus.

E. BARBER QUEAL, M.D., Professor of Physiology, Emeritus.

CHARLES S. ELDER, M.D., Professor of Surgery, Emeritus.

NEWTON WIEST, M.D., Professor of Dermatology, Emeritus.

JAMES R. ARNEILL, A.B., M.D., Professor of Medicine, Emeritus.

JOHN M. FOSTER, M.D., Professor of Oto-laryngology, Emeritus.

HENRY SEWALL, Ph.D., M.D., Sc.D., Professor of Medicine, Emeritus.

EDMUND J. A. ROGERS, A.M., M.D., Professor of Surgery, Emeritus.

THOMAS H. HAWKINS, A.M., M.D., LL.D., Professor of Surgery, Emeritus.

WILLIAM H. DAVIS, M.D., Professor of Dermatology, Emeritus.

WILLIAM J. ROTHWELL, M.D., Professor of Medicine, Emeritus.

FRANCIS H. McNAUGHT, M.D., Professor of Obstetrics, Emeritus.

CHARLES A. POWERS, A.M., M.D., Professor of Surgery, Emeritus.

HERBERT B. WHITNEY, A.B., M.D., Professor of Medicine, Emeritus.

SHERMAN G. BONNEY, A.M., M.D., Professor of Medicine, Emeritus.

GEORGE B. PACKARD, M.D., Professor of Orthopedics, Emeritus.

T. MITCHELL BURNS, M.D., Professor of Obstetrics, Emeritus.

WALTER A. JAYNE, M.D., Professor of Gynecology, Emeritus.

CHARLES B. VAN ZANT, M.D., Professor of Physiology, Emeritus.

* Faculty members in the several grades are arranged in the order of their appointment.

† Died February 3, 1920.

- WILLIAM C. MITCHELL, M.D., Professor of Bacteriology, Emeritus.
DAVID H. COOVER, M.D., Professor of Ophthalmology, Emeritus.
CHARLES B. LYMAN, M.D., Professor of Clinical Surgery and Head of Department.
EDWARD JACKSON, A.M., M.D., Sc.D., Professor of Ophthalmology and Head of Department.
*CLOUGH T. BURNETT, M.D., Professor of Bacteriology.
GEORGE E. NEUHAUS, M.D., Professor of Neurology and Psychiatry and Head of Department.
ROBERT LEVY, M.D., Professor of Oto-laryngology and Head of Department.
LEONARD FREEMAN, B.S., A.M., M.D., Professor of Surgery and Head of Department.
JAMES C. TODD, Ph.B., M.D., Professor of Clinical Pathology and Head of Department.
ARTHUR J. MARKLEY, D.D.S., M.D., Professor of Dermatology and Head of Department.
ROBERT C. LEWIS, Ph.D., Director of Henry S. Denison Research Laboratory; Professor of Biochemistry and Head of Department.
CLARENCE B. INGRAHAM, Ph.B., M.D., Professor of Obstetrics and Gynecology and Head of Department.
CHARLES M. GRUBER, Ph.D., Professor of Physiology and Pharmacology and Head of Department.
IVAN E. WALLIN, Sc.D., Professor of Anatomy and Head of Department.
OSCAR M. GILBERT, M.D., Associate Professor of Medicine.
JOSIAH N. HALL, B.S., M.D., Associate Professor of Medicine.
HOWELL T. PERSHING, M.S., M.D., LL.D., Associate Professor of Psychiatry.
MOSES KLEINER, M.D., Associate Professor of Therapeutics.
MELVILLE BLACK, M.D., Associate Professor of Ophthalmology.
SAMUEL B. CHILDS, A.B., M.D., Associate Professor of Roentgenology.
WILLIAM C. BANE, M.D., Associate Professor of Oto-laryngology.
OLIVER LYONS, M.D., Associate Professor of Genito-Urinary Surgery.
SAMUEL FOSDICK JONES, M.D., Associate Professor of Orthopedic Surgery.
FRANK P. GENGENBACH, M.D., Associate Professor of Pediatrics.

* Resigned June 23, 1919.

- CARBON GILLASPIE, M.D., Associate Professor of Anatomy.
FROST C. BUCHEL, M.D., Assistant Professor of Surgery.
EDWARD F. DEAN, M.D., Assistant Professor of Clinical Surgery.
AUBREY H. WILLIAMS, M.D., Assistant Professor of Clinical Surgery.
*GEORGE H. CATTERMOL, M.D., Assistant Professor of Pediatrics.
EDWARD DELEHANTY, M.D., Assistant Professor of Neurology.
CLAUDE EDWARD COOPER, A.B., M.D., Assistant Professor of Otolaryngology.
RUDOLPH W. ARNDT, M.D., Assistant Professor of Medicine.
GEORGE A. MOLEEN, M.D., Assistant Professor of Neurology.
JOHN B. DAVIS, M.D., Assistant Professor of Genito-Urinary Surgery.
JAMES H. PERSHING, A.B., Lecturer on Medical Jurisprudence.
ARTHUR H. EARLEY, M.D., Lecturer on Rectal Surgery.
ORA S. FOWLER, B.S., M.D., Lecturer on Local Anaesthetics.
WILLIAM C. FINNOFF, M.D., D.Oph., Lecturer on Ophthalmology.
FRANK R. SPENCER, A.B., M.D., Instructor in Otolaryngology.
CLAY E. GIFFIN, A.B., M.D., Instructor in Surgery.
HENRY WILLIAMS WILCOX, M.D., Instructor in Orthopedic Surgery.
CYRUS L. PERSHING, B.S., M.D., Instructor in Neurology.
ROBERT L. CHARLES, M.D., Instructor in Anaesthesia.
WILLIAM H. CRISP, M.D., D.Oph., Instructor in Ophthalmology.
EDWARD R. MURRAY, A.M., M.D., Director of Laboratories (Denver); Instructor in Pathology.
†WILLIAM WILEY JONES, A.B., M.D., Instructor in Medicine.
GEORGE P. LINGENFELTER, M.D., Instructor in Dermatology and Syphilis.
JOHN MURRAY BARNEY, M.D., Instructor in Medicine.
CASPER F. HEGNER, M.D., Instructor in Surgery.
OSCAR M. SHERE, M.D., Instructor in Surgery.
CUTHBERT POWELL, M.D., Instructor in Gynecology.
FOSTER H. CARY, M.D., Instructor in Obstetrics.
CHARLES A. FERRIS, M.D., Instructor in Obstetrics.
HARRY L. BAUM, M.D., Instructor in Otolaryngology.
TRACY R. LOVE, Ph.B., M.D., Instructor in Dietetics.
JOHN A. MCCAW, M.D., D.Oph., Instructor in Ophthalmology.
WILLIAM A. SEDWICK, M.D., Instructor in Ophthalmology.

* On leave of absence, 1919-1920.

† On leave of absence for war service.

- HIRAM R. STILWILL, M.D., Instructor in Ophthalmology.
HUGH M. KINGERY, Ph.D., Instructor in Anatomy.
MAURICE KATZMAN, M.D., Instructor in Bacteriology.
FRANK C. KENNELLEY, M.D., Assistant in Medicine.
ELMERT T. BOYD, M.D., Assistant in Ophthalmology.
WILLIAM M. BANE, M.D., Assistant in Oto-laryngology.
JAMES M. SHIELDS, M.D., Assistant in Ophthalmology.

TEACHING STAFF AT COUNTY HOSPITAL

MEDICINE:

Chief—C. N. Meader.

Attending Physicians—J. M. Barney, C. T. Burnett, J. J. Waring.

Associates—A. L. Beagler, W. W. Jones, R. T. Ramsey, J. C. Weld.

SURGERY:

Chiefs—C. B. Lyman, L. Freeman.

Attending Surgeons—F. C. Buchtel, E. F. Dean, O. M. Shere, A. H. Williams.

Associates—A. C. Craig, C. D. McKenzie, Frank Rogers, N. A. Thompson.

Associate in Rectal Surgery—A. H. Early.

TUBERCULOSIS:

Chief—J. Gelien.

Attending Physicians—H. H. Champlin, A. Minnig.

PEDIATRICS:

Chief—F. P. Gengenbach.

Attending Physicians—J. W. Amessee, E. Friedman, E. C. Kennelley, L. C. Wollenweber.

GENITO-URINARY DISEASES:

Chief—Oliver Lyons.

Attending Surgeon—J. B. Davis.

Associates—J. A. Philpott, R. G. Smith.

ORTHOPEDIC SURGERY:

Chief—S. F. Jones.

Attending Surgeons—C. M. Spicer, R. G. Packard, H. W. Wilcox.

OBSTETRICS AND GYNECOLOGY:

Chief—C. B. Ingraham.

Associate Chief—F. H. Cary.

Attending Surgeons—C. A. Ferris, H. G. Macomber, C. T. Needham, C. Powell.

NEUROLOGY:

Chief—G. E. Neuhaus.

Attending Physicians—E. Delehanty, G. A. Moleen, C. I. Pershing, L. Tepley.

OPHTHALMOLOGY:

Chief—Edward Jackson.

Attending Surgeons—W. C. Finnoff, J. A. McCaw, W. A. Sedwick, H. R. Stilwill.

OTO-LARYNGOLOGY:

Chief—R. Levy.

Attending Surgeons—W. M. Bane, H. L. Baum, C. E. Cooper, S. B. Eichberg.

DERMATOLOGY:

Chief—A. J. Markley.

Attending Physicians—W. H. Davis, G. P. Lingenfelter.

PATHOLOGY: E. R. Mugaage.

CLINICAL STAFF OF THE UNIVERSITY HOSPITAL, BOULDER

MEDICINE: O. M. Gilbert; *SURGERY*: C. E. Giffin; *OBSTETRICS AND GYNECOLOGY*: W. W. Reed; *EYE, EAR, NOSE AND THROAT*: F. R. Spencer; *ANAESTHETIST*: M. E. Miles; *ROENTGENOLOGIST*: C. E. Giffin; *BIOCHEMIST*: R. C. Lewis; *CLINICAL PATHOLOGIST*: J. C. Todd; *PATHOLOGIST*: R. C. Whitman.

CLINICAL STAFF OF THE DISPENSARY

MEDICINE: R. T. Ramsey, Chief; A. L. Beaghler, H. H. Champlin, B. C. Dorset, W. A. Epstein, E. G. Faber, L. W. Frank, W. W. Jones, H. G. Macomber, J. L. Mortimer, J. J. Waring, J. C. Weld.

PEDIATRICS: Frank P. Gengenbach, Chief; B. C. Dorset, R. P. Forbes, E. Friedman, F. C. Kennelley, H. G. Macomber, E. S. Pratt, J. B. Walton, L. C. Wollenweber.

TUBERCULOSIS: J. Gelien, Chief; C. T. Burnett, A. Minnig.

SURGERY: O. M. Shere, Chief; A. C. Craig, H. G. Garwood, C. D. McKenzie, G. B. Packard, Jr., Frank Rogers, N. A. Thompson, L. G. Weldon.

GENITO-URINARY SURGERY: O. Lyons, J. B. Davis, J. A. Philpott, R. G. Smith.

ORTHOPEDICS: R. G. Packard, C. M. Spicer, H. W. Wilcox.

NEUROLOGY AND PSYCHIATRY: G. E. Neuhaus, Chief; C. S. Blue-
nel, E. Delehanty, G. A. Moleen, C. L. Pershing, L. Tepley.

GYNECOLOGY: W. A. Jayne, Chief; W. J. Bingham, F. H. Cary,
J. A. Ferris, M. E. V. Fraser, Elizabeth M. Moyer, G. B. Packard, Jr.,
E. W. Perrott, Sara C. Wilcox.

OBSTETRICAL OUTSERVICE: C. A. Ferris, F. H. Cary, Chiefs; W. J.
Bingham, W. A. Epstein, R. W. Johnson, A. R. Lannon, G. B. Lewis,
I. G. Macomber, P. A. Murphy, R. Schachet, E. E. Taylor, J. B. Wal-
on, S. C. Wilcox.

OPHTHALMOLOGY: H. Aufmwasser, E. T. Boyd, W. H. Crisp, C. O.
Sigler, W. C. Finnoff, J. A. McCaw, W. A. Sedwick, H. R. Stilwill.

OTO-LARYNGOLOGY: W. C. Bane, W. M. Bane, H. L. Baum, C. E.
Cooper, S. B. Eichberg, F. R. Spencer, Mary R. Stratton.

DERMATOLOGY AND SYPHILIS: A. J. Markley, Chief; G. P. Lingen-
elter.

GENERAL STATEMENT

HISTORICAL NOTE

The University of Colorado School of Medicine was opened in September, 1883. On January 1, 1911, the Denver and Gross College of Medicine was united with this School, the two faculties being combined into one. The single school thus formed is an integral part of the University of Colorado. At the same time the third and fourth-year classes were transferred to Denver, where greatly enlarged clinical facilities are available. The Denver and Gross College of Medicine was the union June 19, 1902, of the Denver College of Medicine, a department of the University of Denver, and the Gross Medical College. The former College was opened November, 1881, and the latter in 1887. The School is a member of the Association of American Medical Colleges.

The first two years constitute the Boulder Division of the School, and the last two years, the Denver Division.

ORGANIZATION

The work of the School is divided among fourteen departments, each in charge of a Professor who is Head of the Department, and containing in addition an appropriate number of associate and assistant professors, lecturers, instructors, assistants and members of the Hospital and Dispensary Staffs. The Heads of Departments with the Dean constitute the Executive Faculty, having jurisdiction under the President and Board of Regents of the University.

EQUIPMENT

The first two years are given at Boulder in the Medical Building on the University Campus, where the University Hospital affords facilities for such clinical instruction as is given during the latter part of the second year. The last two years are given in Denver, where the Medical Building houses the dispensary and lecture rooms.

Operative and bedside clinics and clinical conferences are held daily at the Denver City and County Hospital, 250 beds. The Hos-

pital clinics are so arranged that small groups of students have an opportunity to study and observe the cases intimately, under the direction of the proper members of the faculty. The School also maintains a dispensary where daily clinics are attended by small groups of students in Medicine; Pediatrics; Neurology; Tuberculosis; Surgery; Gynecology; Orthopedics; Eye; Ear, Nose and Throat; Dermatology and Genito-Urinary Surgery; and the Clinical Laboratory. There are more than 20,000 visits yearly to the Dispensary. In addition to these, clinics are held for small groups of students at St. Joseph's Hospital, 200 beds, and the Steele (Contagious) Hospital. Clinical facilities are also provided at the Children's Hospital.

There is abundant material for teaching obstetrics, each member of the senior class being required to attend a minimum of six cases, in addition to seeing cases delivered by members of the faculty. Students who desire to do so may attend a much larger number of cases.

Library facilities in Boulder are afforded by the University Library, supplemented by the Denison Library. In Denver, students have free access to the Library of the Medical Society of the City and County of Denver, containing 16,500 bound volumes and 210 current journals.

THE HENRY S. DENISON RESEARCH LABORATORIES

The Henry S. Denison Research Laboratories, together with the Denison Memorial Building, are the gift of Mrs. Ella Strong Denison in memory of her son, Dr. Henry S. Denison, who was a member of the Medical Faculty. The west wing of the building is now completed. It contains special rooms and equipment for research and advanced work in chemistry, physiology, pathology, bacteriology, and clinical medicine, together with the necessary accessory rooms, such as library, cold room, incubator room, operating and sterilizing rooms, dark room, etc. To all who have the necessary educational prerequisites, opportunity is here offered for special work and research.

REVENUES

The revenues of the School are appropriated under a budget system from the general funds of the University. Student fees contribute a small proportion of the total budget.

REQUIREMENTS FOR ADMISSION

See pages 26, 31.

SPECIAL STUDENTS

See page 31.

ADVANCED STANDING

Candidates from a medical college on the accepted list must present to the Registrar of the University at the time of matriculation satisfactory credentials showing that the entrance requirements enforced for students of the class to which entrance is sought have been complied with, and that all the work in which advanced credit is sought has been completed. Students from schools rated in grade "B" are admitted only after passing examinations. Students from schools rated in class "C" are not eligible to advanced standing.

Applicants for advanced standing who have not attended a medical school during the preceding five years must stand examinations in the subjects in which credit is sought.

The School will cooperate in adjusting so far as possible difficulties arising from differences in the arrangement of the curriculum. The responsibility for making these adjustments rests finally, however, with the student, who is expected to make satisfactory arrangements with the instructors concerned. See also page 26.

COURSES LEADING TO TWO DEGREES

A seven-year course leading to the degrees of A.B. and M.D. is offered. The student pursues the regular work of the College of Liberal Arts for three years and then begins his medical studies. The A.B. degree is conferred upon the completion of the first year of Medicine.

REQUIREMENTS FOR A DEGREE

Every candidate for the degree of Doctor of Medicine must be twenty-one years of age, possess a good moral character, and be of temperate habits. He must have passed satisfactory examinations in all the required studies included in the full course of instruction. He must have attended regularly four full courses of lectures of not less than thirty-two weeks each, in some accredited medical

college. No two of such courses shall have been taken in the same year. The last course must be taken in this School. An allowance for absence will be made for no other cause than the illness of the student or of his immediate family, and such absence from any course must not exceed twenty percentum of the scheduled hours.

FEES

For fees, see pages 34, 36.

SCHOLARSHIPS AND LOAN FUNDS

THE EDWARD G. STOIBER SCHOLARSHIP

The Edward G. Stoiber Scholarship Fund consists of the principal sum of \$2,000 held in trust, the income of which is given each year to some student in the School of Medicine, designated by the donor or by the officers of the School. The scholarship was established in The Denver and Gross College of Medicine by Mrs. Edward G. Stoiber in memory of the late Edward G. Stoiber. Under the terms of the merger agreement between The Denver and Gross College and the University of Colorado this fund has been transferred to the Regents, to be held in perpetuity for the purposes specified.

THE PHIPPS LOAN FUND

The Phipps Loan Fund of \$5,000 was established in 1918 by Mr. L. C. Phipps, and Mr. L. C. Phipps, Jr. Several loans are available from it each year for the benefit of promising students of the second, third, or fourth years in need of such assistance to enable them to continue their medical education.

DESCRIPTION OF COURSES*

The following courses constitute the medical curriculum of the first and second years: Anatomy, courses 1, 2, and 3; Biochemistry, courses 3 and 4; Physiology and Pharmacology, courses 1 and 2; Pathology, courses 1, 2, and 3; Clinical Pathology, Course 1; Principles of Medicine; and Principles of Surgery.

Of the above, the following may also be taken in the summer quarter: Anatomy, Course 1, in whole or in part, and Course 2, which is listed in the summer quarter under courses 4, 5 and 6; Biochemistry, courses 3 and 4; Pathology, courses 1, 3 and 7; Clinical Pathology, Course 1.

ANATOMY

1. GROSS ANATOMY. Autumn and winter quarters. 334 h.

The course consists in dissection supplemented by lectures and conferences. The aim of this course is to give the student an opportunity to gain a comprehensive knowledge of the morphology and structure of the human body. The student is required to make a satisfactory dissection of one-half of the body.

The following are the courses required:

Course I. The Upper Extremity.

Course II. The Head and Neck (including the Brain).

Course III. The Thorax.

Course IV. The Abdomen and Pelvis.

Course V. The Lower Extremity.

Professor Wallin.

2. MICROSCOPIC ANATOMY. Autumn and winter quarters. 360 h.

Lectures, recitations, and laboratory exercises.

A combined course in general embryology, histology, histogenesis, organogenesis; and the microscopic anatomy of the central nervous system and sense organs.

* The hours indicated after each course are the total time devoted to the course.

At the beginning of the course a few periods are devoted to histological technique in order that the student may better appreciate the character of the material with which he will later be working.

The laboratory work consists of a study of frog, chick, pig, rat, and human embryos, special demonstrations and models illustrating histogenesis and organogenesis, normal adult tissues, and microscopic preparations of the brain, cord, and sense organs.

Doctor Kingery.

3. TOPOGRAPHIC AND APPLIED ANATOMY. Spring quarter. 132 h.

A study of the relations and topography of the parts of the body, followed by a consideration of the important facts of regional anatomy as applied to the practice of medicine and surgery. The laboratory exercises consist in a study of serial cross-sections and special preparations, including stereoscopic roentgenograms.

Associate Professor Gillaspie.

4. HISTOLOGY. Summer quarter. 200 h.

Lectures, recitations, and laboratory exercises.

The fundamentals of human development and the histology of the tissues and organs.

Doctor Kingery.

5. EMBRYOLOGY. Summer quarter, first term. 100 h.

Lectures, recitations, and laboratory exercises.

Comparative embryology, with especial emphasis on mammalian development.

Doctor Kingery.

6. NEURO-ANATOMY. Summer quarter, second term. 100 h.

Lectures, recitations and laboratory exercises.

The gross and microscopic structure of the central nervous system and sense organs.

Doctor Kingery.

7. ANATOMY FOR TEACHERS OF PHYSIOLOGY. Summer quarter. Primarily for teachers of physiology in grade and high schools. 25 h.

Lectures and demonstrations.

Stereoscopic lantern slides are used to illustrate the anatomy of the human body.

Professor Wallin.

8. ANATOMY FOR NURSES. Autumn quarter. 36 h.

Lectures and demonstrations.

The gross and microscopic structure of the human body.

Associate Professor Gillaspie.

9. ART ANATOMY. Summer quarter. For artists and students of art. 50 h.

A lecture and demonstration course in human anatomy.

Professor Wallin.

10. NEURO-ANATOMY (BRIEF COURSE). Winter quarter. 44 h. Primarily for students of psychology.

Lectures, demonstrations and laboratory exercises.

The structure and function of the central nervous system.

Associate Professor Gillaspie.

11. HISTOLOGICAL TECHNIQUE. Summer quarter. Hours to be arranged. For those who desire a better working knowledge of histology for use in biology or medicine.

A practical course in the preparation of histological and embryological material for microscopic study.

Doctor Kingery.

BIOCHEMISTRY

1. CHEMISTRY FOR NURSES. Spring quarter. 30 h. For the nurses of the University Training School.

Lectures and demonstrations.

An introduction to the fundamentals of inorganic and organic chemistry and a more detailed study of the chemistry and physiology of digestion, metabolism, and excretion.

Professor Lewis.

2. **ELEMENTARY BIOCHEMISTRY.** Spring quarter. 90 h. 5 hours' credit. Primarily for those taking the combined College and Hospital Course for the B.S. degree or the course in Home Economics but open to other properly qualified students.

Chemistry of the carbohydrates, lipins, proteins, and tissues; of digestion, metabolism, and excretion.

Prerequisite: Organic Chemistry.

Professor Lewis.

3. **BIOCHEMISTRY.** Winter quarter. Lectures, 2 a week; laboratory, 6 hours a week. 88 h. 4 hours' credit. This course and the one following are required of first year medical students but are open to advanced students of chemistry who have shown particular proficiency in their chemical work. Credit will be given only upon completion of Course 4.

Chemistry of the carbohydrates, lipins, and proteins, and the physical chemistry of the protoplasm.

Prerequisite: Organic Chemistry with laboratory.

Professor Lewis and Assistant.

4. **BIOCHEMISTRY.** Spring quarter. Lectures, 5 a week; laboratory, 9 hours a week. 154 h. 8 hours' credit.
A continuation of Course 3.

Chemistry of digestion, metabolism, and excretion. Considerable time is devoted to practical qualitative and quantitative methods of analysis of stomach contents, urine, and blood (including work with the newer methods of blood chemical analysis) and to practical work in metabolism.

Professor Lewis and Assistant.

The following courses are open only to graduate and other specially qualified students:

5. **CHEMISTRY OF BLOOD.** Any quarter. Time to be arranged.

The student is required to read and abstract the original articles on methods for the chemical analysis of blood and to make practical application of the newer methods in the laboratory. Pathological bloods are used for comparison with the normal.

Prerequisites: courses 3 and 4.

Professor Lewis and Assistant.

6. **BIOCHEMICAL PREPARATIONS.** Any quarter. Time to be arranged.
Practice in the preparation of compounds of biochemical importance.

Prerequisites: courses 3 and 4.

Professor Lewis.

7. **BIOCHEMICAL SEMINAR.** Throughout the year. Time to be arranged.

Reports of contributions to biochemical literature are made and are discussed in the light of recent advances in biochemistry.

Professor Lewis.

8. **RESEARCH IN BIOCHEMISTRY.** Any quarter. Time to be arranged.

Persons properly qualified may pursue research work under guidance. Credit allowed will depend upon the character of the work accomplished.

Professor Lewis.

PHYSIOLOGY AND PHARMACOLOGY

1. **PHYSIOLOGY.** Spring and autumn quarters. 316 h.

Lectures, recitations, laboratory exercises, and demonstrations.

The physiology of the cell, muscle, and nerve, central nervous system, autonomic nervous system, special senses, blood and lymph, circulation, respiration, digestion and secretion, including the excretory organs, metabolism, nutrition and heat regulation, the endocrine organs and reproduction.

Professor Gruber.

2. **PHARMACOLOGY, MATERIA MEDICA, AND TOXICOLOGY.** Autumn and winter quarters. 179 h.

Lectures, recitations, and laboratory experiments.

The physiologic action, toxicology, and therapeutics of important drugs.

Professor Gruber.

PATHOLOGY

1. **GENERAL BACTERIOLOGY.** Autumn quarter. 156 h. Required of medical students but also open to students of other departments.

Lectures, recitations, and laboratory work.

The chemistry and biology of bacteria, classification, methods of isolation, culture and staining; the phenomena of infection, and the cultural characteristics of the pathogenic organisms. Some time is also devoted to the methods of water and milk analysis, and the identification of unknown organisms.

Doctor Katzman.

2. **HYGIENE AND PREVENTIVE MEDICINE.** Spring quarter. 55 h. Required of medical students and open to students of other departments.

Recitations based on a standard text on public hygiene, epidemiology, and preventive medicine.

Doctor Katzman.

3. **GENERAL PATHOLOGY.** Autumn and winter quarters. 232 h.

Lectures, recitations, and laboratory work.

The pathologic histology and pathologic physiology of the disturbances of the circulation, the degenerations, inflammation, tissue regeneration, the specific infections, and tumors. The laboratory work is conducted by means of stained sections given to the class as unknowns, to be analyzed and diagnosed. The sections become the property of the student.

Professor Whitman.

4. **ADVANCED BACTERIOLOGY.** Any quarter. Hours to be arranged.

Practice in the bacteriological examination of water, milk, food, soil, and air; the determination of vital resistance and efficiency of antiseptics; the methods of bacteriological diagnosis of the specific infections. Special problems will be assigned for investigation to qualified students.

Doctor Katzman.

5. **BACTERIOLOGY FOR ENGINEERING STUDENTS.** Winter quarter. 22 h. Primarily for engineering students, but open also to students of other departments.

Lectures and recitations on the classification of bacteria, their distribution in nature, relation to disease, and methods of destruction, with special reference to the work of the sanitary engineer.

Doctor Katzman.

6. BACTERIOLOGY FOR STUDENTS OF HOME ECONOMICS. Winter quarter. 66 h. Primarily for students of Home Economics, but open also to others.

Lectures, recitations, and laboratory exercises.

The classification of bacteria, methods of cultivation and sterilization with special reference to the preservation of food, the fermentations, and the diseases carried by food.

Doctor Katzman.

7. ADVANCED PATHOLOGY.

An opportunity will be given to properly qualified students to pursue work, either in some field of laboratory technique, or to take up a more intensive study of one or more phases of pathologic diagnosis than is possible in the course in general pathology.

The resources of the department are at the disposal of properly qualified persons for research work.

Professor Whitman.

CLINICAL PATHOLOGY

1. CLINICAL PATHOLOGY FOR MEDICAL STUDENTS. Autumn and winter quarters. 176 h.

Lectures and laboratory exercises.

The technique and interpretation of results of clinical examinations of sputum, urine, stomach contents, feces, blood, cerebro-spinal fluid, transudates, exudates, and pathologic secretions. About 35 hours are devoted to animal parasites. Students in rotation make the routine examinations, under supervision, for the University Hospital.

Professor Todd and Assistants.

2. CLINICAL LABORATORY METHODS. Summer quarter. 220 h. Primarily for nurses and others who wish to qualify as laboratory technicians, but also open, under certain conditions, to students who seek medical credit.

Lectures, conferences, and systematic laboratory exercises, 192 hours, with practice in routine laboratory work for University Hospital, about 28 hours.

The course covers the same subjects as Course 1, but more

attention is given to chemical methods and less to interpretation of results. Any of the subjects may be taken separately by special arrangement.

Professor Todd and Assistants.

3. **CLINICAL LABORATORY METHODS (SHORT COURSE).** Summer quarter, first three weeks. Repeated in the last three weeks of the quarter. 60 h. Primarily for practitioners of medicine and others who wish instruction in routine methods applicable to a physician's office laboratory.

Lectures and laboratory exercises.

Professor Todd and Assistants.

4. **SERODIAGNOSIS: TECHNIQUE OF THE WASSERMANN TEST.** Hours to be arranged.

Lectures and laboratory exercises.

The technique of one of the standard methods of performing the Wassermann test, together with the preparation and titration of the reagents. The course is designed for technicians and only such theoretical considerations as are essential to an understanding of the test are included.

Professor Todd and Assistants.

5. **ELEMENTARY CLINICAL LABORATORY METHODS.** Spring quarter. 17 h. For nurses in training.

An introductory course.

Lectures on the clinical value of various laboratory procedures, with emphasis upon the methods of collecting material, together with brief laboratory drill in the technique of the simpler tests.

Professor Todd and Assistants.

6. **PRACTICAL CLINICAL LABORATORY WORK.** Throughout the school year. Graduate credit, 5 to 6 h. Open only to matriculates in the Graduate School, and limited to two.

Routine examination of material from University Hospital with full laboratory studies of selected cases.

Professor Todd.

7. **ADVANCED CLINICAL PATHOLOGY.** Autumn, winter, or spring quarter. Hours to be arranged. Graduate credit, 3 h. Open only to matriculates in the Graduate School.
Seminar and laboratory work upon selected subjects.

Professor Todd.

8. **SERODIAGNOSIS.** Autumn, winter or spring quarter. Hours to be arranged. Graduate credit, 3 to 4 h. Open only to matriculates in the Graduate School.
Seminar and laboratory work.

Professor Todd.

The following correspondence courses are offered:

9. **HEMATOLOGY A.** The time required for the course is estimated at 150 to 200 h. Open to anyone who has completed one year of a medical course.

Twenty assignments covering the technique and interpretation of clinical examinations of the blood with the exception of the more elaborate chemical and serological methods. Equivalent to the corresponding portions of Course 1. A small amount of independent work with a review of the literature of the subject is required.

Professor Todd.

10. **HEMATOLOGY B.** Time required is estimated at 150 to 200 h.
For nurses and others who have had no training in medicine.

Covers the same field as Hematology A. Technique is emphasized and less stress is laid upon interpretation of results. No piece of independent work is demanded.

Professor Todd.

11. **BLOOD MORPHOLOGY.** Time required is estimated at 60 to 80 h.
The microscopic study of normal and pathologic blood corpuscles, blood parasites, etc.

Professor Todd.

12. **MICROSCOPY.** Time required is estimated at 15 to 25 h.
Elementary exercises upon the principles of microscopy and the practical use of the microscope, including the subjects

of illumination, measurement of microscopic objects and recognition of artefacts and contaminations. Intended as an introduction to any course in which the microscope is extensively used.

Professor Todd.

PRINCIPLES OF MEDICINE

1. PRINCIPLES OF MEDICINE. Spring quarter. 55 h.

Lectures and clinical exercises.

The nature of disease processes, the fundamental principles of differential diagnosis, and methods of physical examination.

Associate Professor Gilbert.

PRINCIPLES OF SURGERY

1. PRINCIPLES OF SURGERY. Spring quarter. 55 h.

Lectures, recitations, and clinical exercises.

Wounds and healing of wounds, infection, inflammation, necrosis, surgical tuberculosis, bandaging, etc.

Doctor Giffin.

THIRD YEAR (AT DENVER)

MEDICINE

1. THEORY AND PRACTICE. Three quarters. 160 h.

Lectures, recitations and reports covering the subject of internal medicine.

Professors Hall, Meader, and Arndt, and Doctor Burnett.

2. CLINICAL MEDICINE. Three quarters. 46 h.

A series of clinics at the County Hospital upon patients from the medical wards.

The Medical Staff.

3. PEDIATRICS. Winter quarter. 33 h.

Lectures and recitations on infant feeding and the important diseases of childhood.

Associate Professor Gengenbach.

4. CLINICAL THERAPEUTICS. Spring quarter. 33 h.

Lectures and recitations on the application of the principles of pharmacology to specific therapeutic problems.

Associate Professor Kleiner.

5. PHYSICAL DIAGNOSIS. Any quarter. 30 h.

Clinical exercises with small groups of students on the recognition and interpretation of abnormal signs.

Doctor Barney.

6. PATHOLOGICAL PHYSIOLOGY. Autumn quarter. 12 h.

Lectures on perverted action and function of diseased organs.

Emeritus Professor Van Zant.

7. CASE TAKING. Any quarter. 30 h.

Practical history taking by small groups of students in the Dispensary.

The Dispensary Staff.

NEUROLOGY

1. PRINCIPLES OF NEUROLOGY. Autumn quarter. 36 h.

Lectures reviewing the anatomy and physiology of the central nervous system, its symptomatology, and neurologic methods.

Professor Neuhaus.

2. NEUROLOGIC DIAGNOSIS. Any quarter. 30 h.

Practical exercises for small groups of students in history taking, and physical examination of neurologic patients, and the physiological interpretation of neurologic signs and symptoms. Instruction is also given in the diagnostic and therapeutic use of electricity.

Doctor Pershing or Doctor Tepley.

3. PATHOLOGICAL PSYCHOLOGY. Winter quarter. 22 h.

Lectures on the fundamental laws of psychology as applied to the relation of physician and patient, and to diseased states, psychoanalysis, etc.

Professor Neuhaus.

SURGERY

1. **MINOR SURGERY.** Autumn and winter quarters. 46 h.
Lectures on the surgery of the bones and joints, and the minor surgical operations.
Assistant Professor Dean and Doctor Shere.
2. **SURGICAL PATHOLOGY.** Winter quarter. 22 h.
Lectures and laboratory.
Doctor Hegner.
3. **ORTHOPEDICS.** Spring quarter. 22 h.
Clinical lectures on the more important orthopedic conditions.
Associate Professor Jones.
4. **GENITO-URINARY SURGERY.** Spring quarter. 33 h.
Lectures.
Associate Professor Lyons.
5. **ROENTGENOLOGY.** Spring quarter. 22 h.
Lectures and demonstrations on the diagnostic and therapeutic use of the Roentgen ray and on the interpretation of skiagrams.
Associate Professor Childs.
6. **CLINICAL SURGERY.** Three quarters. 46 h.
A series of clinics at the County Hospital on patients from the surgical wards.
The Surgical Staff.

OBSTETRICS AND GYNECOLOGY

1. **NORMAL OBSTETRICS.** Autumn quarter. 48 h.
Lectures on the physiology, diagnosis, and management of normal pregnancy, labor, and the puerperium.
Professor Ingraham and Doctor Cary.
2. **PATHOLOGICAL OBSTETRICS.** Winter quarter. 33 h.
Lectures on the pathology, diagnosis, and treatment of the complications of pregnancy.
Professor Ingraham and Doctor Ferris.

3. MANIKIN COURSE. Any quarter. 30 h.

The class is divided into small groups for practical exercises on the manikin, and practice in gynecological and obstetrical diagnosis, accompanied by lectures and recitations.

Doctor Ferris.

4. GYNECOLOGY. Spring quarter. 33 h.

Lectures.

Professor Ingraham.

OPHTHALMOLOGY

1. OPTHALMOLOGY. Winter quarter. 33 h.

Lectures and recitations on errors of refraction and ocular movements, and the common injuries and diseases of the eye.

Professor Jackson.

2. DEMONSTRATION. Any quarter. 10 h.

Demonstrations to small sections of the class on methods of diagnosis, ophthalmoscopy, etc., with lectures and recitations on normal optics.

Professor Jackson and Assistants.

OTO-LARYNGOLOGY

1. OTO-LARYNGOLOGY. Autumn quarter. 36 h.

Lectures on diseases of the ear, nose, and throat.

Professor Levy.

2. DEMONSTRATIONS. Any quarter. 20 h.

The class is divided into small groups for lectures and quizzes on the anatomy and physiology of the ear, nose, and throat, and for practical diagnostic exercises in the use of the otoscope, laryngoscope, rhinoscope, etc.

Professor Levy and Assistants.

DERMATOLOGY

1. DERMATOLOGY. Spring quarter. 33 h.

Lectures on the commoner diseases of the skin, and syphilis.

Professor Markley.

PATHOLOGY

1. SPECIAL PATHOLOGY. Three quarters. 62 h.

Lectures and laboratory demonstrations on pathological conditions and disease processes of the more important organs and organ systems.

Doctor Mugrage.

2. IMMUNITY AND SPECIAL PATHOLOGY. Three quarters. 93 h.

Lectures, recitations, and laboratory demonstrations on the phenomena of immunity, and their application to diagnosis and treatment. The course also includes practical laboratory exercises on tumor diagnosis.

Doctor Mugrage.

FOURTH YEAR (AT DENVER)

CLINICAL INSTRUCTION

Clinical instruction is given in three forms, namely, amphitheater clinics, clinical clerkships, and dispensary clinics. Students are given every facility compatible with the welfare of the patient, for direct personal study of the patient.

GENERAL CLINICS are held from 8:00 to 9:00 at the County Hospital, as follows:

	Hours per Year
Medicine	45
Surgery	45
Neurology and Psychiatry.....	34
Pediatrics	11
Tuberculosis	22
Genito-Urinary Surgery	22

The hours from 9:00 to 11:00 a. m. are assigned to Clinical Clerkships. In this capacity the students are apportioned among the various departments of the County Hospital and carry on their studies of patients under the direct supervision of members of the Visiting Staff.

The hours spent in each department are approximately as follows:

	Hours		Hours
Dermatology and Contagious Diseases	14	Ophthalmology	14
Genito-Urinary Diseases.....	28	Orthopedics	42
Medicine	42	Oto-laryngology	28
Neurology and Psychiatry..	42	Pediatrics	42
Obstetrics and Gynecology..	42	Surgery	42
		Tuberculosis	42

OBSTETRICS. Each student, in addition to his Clinical Clerkship, is required personally to attend a minimum of six cases, and may, if he desires, attend a much larger number.

GROSS PATHOLOGY. The class is divided into small sections for attendance upon autopsies, each section attending all autopsies posted during a given time. Credit for attendance at 25 autopsies is required of each student so far as material permits.

DISPENSARY CLINICS are conducted in the following departments: Medicine; Pediatrics; Surgery; Neurology; Gynecology; Eye; Ear, Nose and Throat; Dermatology and Genito-Urinary Surgery; Tuberculosis, and the Clinical Laboratory.

The class is divided into small sections. Each section spends one and one-half hours daily for three and one-half weeks in each of the above departments. All cases are studied by the students under the immediate supervision of members of the Dispensary Staff.

The didactic teaching of the fourth year is as follows:

MEDICINE

1. CASE TEACHING IN MEDICINE. Three quarters. 33 h.
Associate Professor Gilbert.
2. CASE TEACHING IN PEDIATRICS. Winter and spring quarters.
22 h.
Professor Gengenbach.
3. DIETETICS. Autumn quarter. 12 h.

Lectures on the application of the chemistry and physiology of metabolism to clinical problems.

Doctor Love.

NEUROLOGY AND PSYCHIATRY

1. NEUROLOGY AND PSYCHIATRY. Three quarters. 66 h.

Lectures on psychiatry, the psycho-neuroses, and the principles of psycho-therapy; and the organic diseases of the peripheral nerves, spinal cord, and brain.

Associate Professor Pershing and Assistant Professors
Delehanty and Moleen.

SURGERY

1. LECTURES. Three quarters. 99 h.

Tumors and injuries of the abdomen, surgery of the breast, amputations, surgery of the intestines, liver, spleen, and pancreas, and surgery of the head, neck, and rectum.

Professors Freeman and Lyman and Asst. Professor Buchtel.

2. OPERATIVE SURGERY. Autumn and winter quarters. 33 h.

Small sections of students are taught by actual practice upon the dog and cadaver, under the supervision of the instructor, the principles and technique of the more important operations.

Doctors Shere and Hegner.

3. ANAESTHESIA. Autumn quarter. 11 h.

Lectures.

Doctor Charles.

4. LOCAL ANAESTHESIA. Winter quarter. 6 h.

Lectures.

Doctor Fowler.

MEDICAL JURISPRUDENCE

1. LECTURES. Winter quarter. 33 h.

Mr. James H. Pershing.

MEDICAL ETHICS AND HISTORY OF MEDICINE

1. TALKS BY VARIOUS MEMBERS OF THE FACULTY. Spring quarter.
11 h.

SUMMARY OF COURSES FOR 1919-1920

FIRST YEAR:

	Lect.	Lab.	Clin.	Tot.
Anatomy	104	230	...	334
Histology and Embryology..	81	279	...	360
Physiology	55	165	...	220
Biochemistry	77	165	...	242
	317	839	...	1,156

SECOND YEAR:

Anatomy	33	99	...	132
Bacteriology	60	120	...	180
Pathology	88	144	...	232
Hygiene	55	...	...	55
Pharmacology	80	99	...	179
Surgery	55	...	...	55
Medicine	55	...	...	55
Clinical Pathology	55	119	...	174
	481	581	...	1,062

THIRD YEAR:

Dermatology	33	...	...	33
Genito-Urinary Diseases	33	...	...	33
Gynecology	33	...	...	33
Medicine	182	...	106	288
Neurology	58	...	30	88
*Obstetrics	81	...	30	111
Ophthalmology	33	...	10	43
Orthopedics	22	...	...	22
Oto-laryngology	36	...	20	56
Pathology	96	68	...	164
Pediatrics	33	...	...	33
Roentgenology	22	...	...	22
Surgery	68	...	46	114
Therapeutics	33	...	...	33
	763	68	242	1,073

FOURTH YEAR:

Dermatology .....	...	...	30	30
Dietetics	12	...	...	12
Genito-Urinary Surgery ....	...	...	43	43
Medicine	33	...	151	184
Medical Ethics and History..	11	...	...	11
Medical Jurisprudence	33	...	...	33
*Obstetrics and Gynecology..	...	...	72	72
Ophthalmology .....	...	...	44	44
Orthopedics .....	...	...	72	72
Oto-laryngology .....	...	...	58	58
†Pathology .....	...	...	...	...
Pediatrics	22	...	72	94
Surgery	116	33	117	266
	227	33	659	919

RECAPITULATION:

First year	306	850	...	1,156
Second year	484	639	...	1,123
Third year	763	68	242	1,073
Fourth year	227	33	659	919
Totals	1,833	1,551	961	4,345

* Does not include time spent in personal conduct of out-patient cases.

† Presence at 25 autopsies required.

UNIVERSITY OF COLORADO HOSPITAL

GENERAL STATEMENT

The University Hospital is situated on ground adjacent to the Main Campus. The main hospital is equipped for the care of medical, surgical, and obstetrical cases; there is a separate building for the care of contagious cases. In the wards and private rooms there are accommodations for seventy-five patients.

Any reputable physician may bring his patients to the hospital for care, on payment of the established fees. Students of the University are cared for at a discount from the usual fees, and it has often been found of great advantage to them when sick away from home.

HOSPITAL BOARD

CHARLES N. MEADER, A.B., M.D., Chairman.

ROBERT C. LEWIS, Ph.D., Secretary.

VALENTINE B. FISCHER, M.D.

OSCAR M. GILBERT, M.D.

WALTER W. REED, M.D.

JAMES C. TODD, M.D.

FRANK H. WOLCOTT, B.S.

MARTHA M. RUSSELL, R.N.

ADMINISTRATIVE STAFF

MARTHA M. RUSSELL, R.N., Superintendent.

LUCINDA MARTIN, R.N., Surgical Supervisor.

HATTIE R. BIDDLE, R.N., Night Supervisor.

MINNA A. STONER, B.S., Dietitian and Business Supervisor.

UNIVERSITY OF COLORADO TRAINING SCHOOL FOR NURSES

FACULTY

GEORGE NORLIN, Ph.D., President of the University.

CHARLES N. MEADER, A.B., M.D., Dean of the School of Medicine.

MARTHA M. RUSSELL, R.N., Superintendent of the Hospital; Practical Nursing, Ethics of Nursing.

*CLOUGH T. BURNETT, M.D., Bacteriology.

JAMES C. TODD, Ph.B., M.D., Clinical Pathology.

CARBOX GILLASPIE, M.D., Anatomy.

HOMER C. WASHBURN, B.S. (Phar.), Materia Medica.

ROBERT C. LEWIS, Ph.D., Chemistry.

OSCAR M. GILBERT, M.D., Medical Diseases.

*FRANCIS J. PERUSSE, B.Sc., Pharmacology.

WALTER W. REED, M.D., Gynecology and Obstetrics.

VALENTINE B. FISCHER, A.B., M.D., D.Oph., Diseases of Eye, Nose, and Throat.

MARTIN E. MILES, M.D., Nervous and Mental Diseases.

WALTER K. REED, A.B., M.D., Pediatrics.

CYRUS W. POLEY, A.B., M.D., Communicable Diseases.

LUCINDA MARTIN, R.N., Surgical Nursing.

MINNA A. STONER, B.S., Medical and Practical Dietetics.

JOSEPH COLE, Röntgenology.

GENERAL STATEMENT

The Training School for Nurses of the University of Colorado, established in 1898, offers a thorough course of instruction to young women who desire to enter the profession of nursing.

The requirements for admission are the same as for the College of Liberal Arts of the University. The candidates must be graduates of an accredited high school, and present fifteen acceptable units. Applications from candidates who have completed an equivalent amount of work under other conditions will be considered on the merits of each case.

Candidates are received on probation for three months; during

* Resigned June 23, 1919.

this period they receive room, board and a reasonable amount of laundry service. If their theoretical and practical work proves satisfactory they become members of the school.

Until October, 1921, an allowance of \$8.00 per month is given to each pupil to cover the expense of uniforms, textbooks, and incidentals. An annual vacation of two weeks is given to each pupil.

Class work is accommodated to the schedules of the University, nearly all being given in the months between September and May. The students are on duty about 56 hours per week.

The College of Liberal Arts of the University has cooperated with the Training School for Nurses in organizing a course of study leading to the degree of B.S. and a nurse's diploma; so that a young woman may complete a cultural and professional training in the five-year period allotted to this work.

Every candidate for graduation must have completed the required theoretical and practical work and have been a member of the training school for three years, or have been admitted to advanced standing because of previous satisfactory work in an approved college in the sciences on which nursing is based.

Any additional information desired will be sent on application to the Superintendent of the University Hospital, Boulder, Colorado.

COURSE OF STUDY

FIRST YEAR

Practical Dietetics	*20
Anatomy	30
Physiology	30
Bacteriology	30
Chemistry	36
Personal Hygiene	20
Practical Nursing	64
Drugs and Solutions	20
Nursing Ethics	10
Massage	10
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	270

SECOND YEAR

Medical Diseases	30
Surgical Technique	12
Obstetrics	30
Pediatrics	20
History of Nursing	10
Materia Medica	30
Communicable Diseases	10
Clinical Pathology	10
Eye, Ear, Nose and Throat	10
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	162

THIRD YEAR

Mental and Nervous Diseases	10
Gynecology	20
Professional Problems	20
X-ray Lectures	8
Public Sanitation	10
Medical Dietetics	10
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	78

Electives, about 50 hours:

Psychology, Economics, Social Welfare.

* Actual hours.

SCHOOL OF LAW

FACULTY AND LECTURERS

FACULTY

GEORGE NORLIN, Ph.D., President of the University.

JOHN D. FLEMING, A.B., LL.B., LL.D., Dean; Charles Inglis Thomson Professor of Law.

JOHN CAMPBELL, A.M., LL.B., LL.D., Dean, Emeritus.

ALBERT A. REED, LL.B., Professor of Law, Emeritus.

FRED G. FOLSOM, A.B., LL.B., Professor of Law.

WILLIAM R. ARTHUR, A.B., LL.B., Professor of Law.

HERBERT S. HADLEY, A.B., LL.B., LL.D., Professor of Law.

*EDWIN W. PATTERSON, A.B., LL.B., Professor of Law.

BRYANT SMITH, A.M., LL.B., Instructor in Law.

LECTURERS

ROBERT S. MORRISON, Lecturer on Law of Mines and Mining.

†WILLARD J. WHITE, A.M., M.D., Lecturer on Medical Jurisprudence.

JAMES W. MCCREERY, Lecturer on Law of Irrigation and Water Rights.

JOHN E. ROBINSON, Lecturer on Bankruptcy.

HARRY S. SILVERSTEIN, A.B., Lecturer on Criminal Procedure.

HENRY E. LUTZ, LL.B., Lecturer on Equity Pleading and Practice.

JOHN H. FRY, LL.B., Lecturer on Auxiliary Code Remedies.

ARTHUR W. FITZGERALD, A.B., LL.B., Lecturer on Conveyancing and Abstracts.

* Resigned March 9, 1920.

† On leave of absence for war service.

GENERAL STATEMENT

HISTORY

The School of Law was organized in 1892. The course of study occupied two years until 1898 when it was increased to three years. In 1912 the entrance requirements were advanced to include two years of college work in addition to the high-school education previously prescribed. It has been a member of the Association of American Law Schools since the first annual meeting of the Association in 1901.

BUILDING

The Simon Guggenheim Law Building, erected in 1909, contains lecture and classrooms, professors' rooms, moot and practice court rooms, and rooms for the library. It is the gift of Honorable Simon Guggenheim, formerly United States Senator from Colorado.

THE CHARLES INGLIS THOMSON PROFESSORSHIP

Mrs. Olivia Thomson, lately deceased, has given by will for use of the School of Law the sum of \$75,000, the proceeds of which are used to support, in memory of her husband, a professorship known as "The Charles Inglis Thomson Professorship of Law."

THE LIBRARY

The University Library is open to students of all departments.

The Law Library contains 9,900 volumes embracing many sets of state reports, the National Reporter System, all the reports of the Annotated Series, the digests, including the Century, all the encyclopedias, many original English Reports, the English Reports Full Reprint, digests, and statutes, U. S. departmental reports, and a carefully selected collection of textbooks, and is increased each year under special appropriations by the Regents. Most of the leading law journals, American and English, are regularly taken and are on file. The Law Library is under the supervision of an experienced librarian and assistant, and is open to the students from 8:00 A.M. to 10:00 P.M. on week days.

An accession of one thousand volumes, chiefly reports, from the library of the late Judge C. I. Thomson, the gift of his widow, has been lately made. The volumes are known and catalogued as the "C. I. Thomson Collection."

REQUIREMENTS FOR ADMISSION

See pages 26, 31.

ADVANCED STANDING

Students if otherwise entitled to admission as regular students will be admitted to advanced standing in the second or third year only upon presentation of satisfactory certificates of the completion of equivalent subjects in another law school of equal rank. Such applicants may also in the discretion of the faculty be required to undergo an examination in any or all subjects of the first or second year.

SPECIAL STUDENTS

See page 31.

FEEES

For fees, see pages 34, 36.

DEGREE OF BACHELOR OF LAWS

The degree Bachelor of Laws will be conferred on students who have met the entrance requirements for candidates for the degree and who have satisfactorily completed the three-year curriculum in accordance with the regulations established by the faculty. The time allowance may be proportionally reduced for those who enter with advanced standing, but the candidate for a degree must have pursued at least one year's course as a resident student. No degree will be conferred until the candidate shall have reached the age of twenty-one years.

METHOD OF INSTRUCTION

What is known as the Case-system, or the study of the principles of law as illustrated in judicial opinion, is followed with the view of arriving at such principles by the process of inductive reasoning.

TEACHING PRACTICE

As thorough a course as circumstances will allow in court practice and procedure is deemed an essential part of the curriculum. To supply a knowledge of this, a Practice Court has been provided in which the records and files are kept and the proceedings conducted in conformity with the usage and practice in the courts of Colorado.

It is intended that each student shall participate in the conduct to final judgment of at least two cases in each of the second and third years of his course.

INSTRUCTION IN OTHER DEPARTMENTS OF THE UNIVERSITY

The instruction given in other departments of the University is open also to students of the School of Law, subject to the approval of the Law Faculty. Among the numerous courses, those upon Political Science and Economics, Geology, Mineralogy, History, Oratory and Debate, are particularly recommended for law students. Students intending to take up the study of law are advised to consult with the Dean in regard to their pre-legal courses.

PRIZES

The American Law Book Company of New York City gives annually a prize of a complete set of "Cyc" with its Annual Annotations to the student of the third-year class who attains the highest scholarship honors for the period of his senior year.

Callaghan and Company, Law Publishers, Chicago, give annually a prize of The Cyclopedic Law Dictionary, one volume, to the student of the second-year class who attains the best general average in his studies for the year.

COURSE OF STUDY

It is the purpose of the School to afford such training in the fundamental principles of the English and American law as will thoroughly prepare the student to practice his profession with credit in any state or country where this law prevails.

Every candidate for the degree Bachelor of Laws is required to take all the subjects of the first year, at least thirteen hours a week in each quarter of the second year, and at least thirteen hours a week in each quarter of the third year. The work of the second and third years must include all subjects preceded by a star in the outline of studies below.

In addition to the above, all students are required to take the Practice Court work, and such special lectures as are provided.

FIRST YEAR

FIRST QUARTER

COMMON LAW PLEADING. 5 h.

Ames' Cases on Pleading (2d ed.); McKelvey on Common Law Pleading.

Professor Folsom.

CONTRACTS. 5 h.

Williston's Cases on Contracts, Vols. I and II (1904 ed.)

Professor Arthur.

TORTS. 4 h.

Ames and Smith's Cases on Torts, Vols. I and II (1909-1910 ed.).

Mr. Smith.

SECOND QUARTER

CONTRACTS. 5 h. (Continued.)

Professor Arthur.

PROPERTY. 5 h.

Gray's Cases on Property, Vol. I (2d ed.).

Professor Arthur.

TORTS. 4 h. (Continued.)

Mr. Smith.

THIRD QUARTER

AGENCY. 3 h.

Huffcut's Cases on Agency (2d ed.).

Professor Fleming.

CRIMINAL LAW AND PROCEDURE. 5 h.

Beale's Cases on Criminal Law (3d ed.).

Professor Hadley.

PROPERTY. 5 h.

Gray's Cases on Property, Vol. II (2d ed.).

Professor Arthur.

USE OF LAW BOOKS (with practical exercise). 2 h.

Professor Arthur.

SECOND YEAR

*BILLS AND NOTES. 4 h.

Smith and Moore's Cases on Bills and Notes.

Mr. Smith.

CARRIERS. 3 h.

Beale's Cases on Carriers (2d ed.).

Professor Hadley.

*CIVIL PROCEDURE UNDER THE CODE. 3 h.

Colorado Code of Procedure and Selected Cases.

Professor Folsom and Mr. Fry.

DAMAGES. 3 h.

Beale's Cases on Damages (2d. ed.); Workmen's Compensation acts.

Professor Hadley.

DOMESTIC RELATIONS. 3 h.

Woodruff's Cases on Domestic Relations (3d ed.).

Professor Hadley.

EQUITY JURISDICTION. 5 h.

Ames' Cases on Equity, Vol. I and Vol. II.

Professor Folsom.

EQUITY PLEADING AND PRACTICE.

Lectures at appointed hours.

Mr. Lutz.

EVIDENCE. 5 h.

Thayer's Cases on Evidence (2d ed.).

Professor Folsom.

INSURANCE. 2 h.

Richard's Cases on Insurance.

Professor Fleming.

PARTNERSHIP. 4 h.

Burdick's Cases on Partnership.

Mr. Smith.

*PROPERTY. 4 h.

Gray's Cases on Property, Vol. III (2d ed.).

Professor Arthur.

*PROPERTY (WILLS). 4 h.

Costigan's Cases on Wills.

Professor Arthur.

SALES. 4 h.

Williston's Cases on Sales (2d ed.).

Professor Fleming.

THIRD YEAR

*APPELLATE PRACTICE. 2 h.

Colorado Statutes and Selected Cases.

Professors Fleming and Folsom.

BANKRUPTCY.

Lectures at Appointed Hours.

Mr. Robinson.

*CONFLICT OF LAWS. 4 h.

Beale's Shorter Selection of Cases on Conflict of Laws.

Professor Fleming.

*CONSTITUTIONAL LAW. 7 h.

Hall's Cases on Constitutional Law.

Professor Fleming.

CONVEYANCING AND ABSTRACTS OF TITLE. 2 h.

Drafting exercises, study of selected abstracts, and title searching.

Mr. Fitzgerald.

*IRRIGATION AND WATER RIGHTS. 3 h.

Bingham's Cases on Water Rights; Selected Cases from All States.

Professor Fleming.

LEGAL ETHICS. 2 h.

Costigan's Cases on Legal Ethics.

Professor Hadley.

*MINES AND MINING. 4 h.

Costigan's Cases on Mining Law.

Professor Fleming.

MORTGAGES. 4 h.

Wyman's Cases on Mortgages.

Professor Arthur.

MUNICIPAL CORPORATIONS. 3 h.

Beale's Cases on Municipal Corporations.

Professor Hadley.

PLEADING AND PRACTICE UNDER THE CODE.

This course covers the work in the Practice Court described above.

Professor Folsom.

*PRIVATE CORPORATIONS. 5 h.

Warren's Cases on Private Corporations (2d ed.).

Professor Hadley.

PROPERTY. 4 h.

Gray's Cases on Property, Vol. V (2d ed.).

Professor Arthur.

PROPERTY. 4 h.

Gray's Cases on Property, Vol. VI (2nd ed.).

Professor Arthur.

PUBLIC UTILITIES. 3 h.

Wyman's Cases on Public Service Companies (2d ed.).

Professor Hadley.

*STATUTES. 2 h.

A study of some important Colorado Statutes.

Professor Fleming.

SURETYSHIP AND GUARANTY. 3 h.

Ames' Cases on Suretyship and Guaranty.

Professor Folsom.

TRUSTS. 3 h.

Ames' Cases on Trusts.

Professor Folsom.

COLLEGE OF PHARMACY

FACULTY

GEORGE NORLIN, Ph.D., President of the University.

HOMER C. WASHBURN, B.S. (Phar.), Dean; Professor of Pharmacy.

FRANCIS RAMALEY, Ph.D., Professor of Biology.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

OLIVER C. LESTER, Ph.D., Sc.D., Professor of Physics.

*CLOUGH T. BURNETT, M.D., Professor of Bacteriology.

ROBERT C. LEWIS, Ph.D., Professor of Biochemistry.

JAY W. WOODROW, Ph.D., Professor of Physics.

PAUL M. DEAN, Ph.D., Assistant Professor of Chemistry.

*FRANCIS J. PERUSSE, B.Sc., Acting Assistant Professor of Pharmacy.

CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.

BESSIE R. GREEN, A.M., Instructor in Biology.

HORACE B. VAN VALKENBURGH, M.S., Instructor in Chemistry.

MAURICE KATZMAN, M.D., Instructor in Bacteriology.

†HERBERT C. HANSON, A.M., Instructor in Biology.

HAZEL D. JAQUISS, Ph.G., Assistant in Pharmacy.

* Resigned June 23, 1919.

† Appointed January 14, 1920.

GENERAL STATEMENT

ORGANIZATION

The Board of Regents in April, 1911, authorized the establishment of a College of Pharmacy, to be a division of the School of Medicine. In June, 1913, the College of Pharmacy was organized as a separate department. It was opened in September, 1911, and from the beginning has maintained a standard of requirements for entrance and graduation equal to the best schools of pharmacy in the country.

COURSES AND DEGREES

The College offers thorough and practical courses in all subjects pertaining to pharmacy, and fits the student to pursue any of the various branches of the profession. It aims to cooperate with the State Board of Pharmacy and the State Pharmaceutical Association in maintaining a high standard for the profession of pharmacy in Colorado.

The obligation, imposed upon those who manufacture and dispense pharmaceuticals, by an ever-increasing public demand for purer and better drugs and medicines, must result in their employing technically trained assistants for responsible positions which have heretofore, very frequently, been left to irresponsible and incompetent persons.

The operation of state and federal food and drug laws is creating a demand for thoroughly equipped pharmacists, drug inspectors and analysts. Well-trained chemists who also know something of physiology, pharmacology and bacteriology are needed by many manufacturing concerns, hospitals and public institutions, and in the government service. To qualify for such work there is required a general and technical training that cannot be gained short of the three-year course in pharmacy, while those preparing for the better positions will need to take the four-year course.

The four-year course of study will appeal to students wishing a strong, well-balanced scientific course which embodies the essentials of a number of sciences but affords specialization along chemical lines. The degree granted, B.S. (Phar.), admits to the Grad-

uate School so that students who wish still more advanced work may proceed to the A.M. and Ph.D. degrees.

For the present the University continues to offer a two-year course by which the student may prepare for the retail drug business, but even for this kind of work the student is strongly advised to take the regular three years of work leading to the degree of Pharmaceutical Chemist.

The following degrees are conferred upon students who fulfill the entrance requirements and complete the required work:

1. Bachelor of Science in Pharmacy, B.S. (Phar.), on completion of the four-year course, with 185 credit hours.

2. Pharmaceutical Chemist, Ph.C., on completion of the three-year course, with 140 credit hours.

EQUIPMENT

Ample classroom, library and laboratory facilities are provided. The laboratories of Pharmacy, Chemistry, Botany, Physiology, Pharmacology, and Bacteriology are all fully equipped with standard apparatus and materials.

REQUIREMENTS FOR ADMISSION

See pages 26, 31.

FEES

For fees, see pages 34, 36.

THE THREE-YEAR COURSE, FOR DEGREE Ph.C.

A complete schedule is printed on page 259. The exact topics offered may be varied somewhat from year to year but in all cases the subject matter will be distributed essentially as follows:

Subjects	Credit Hours
Chemistry	52
Pharmacy	28
Physics	12
Physiology, Pharmacology and Materia Medica.	10
English	9
Botany	9
Pharmacognosy	7
Physical Education or Drill.....	6
Bacteriology	4
Trigonometry	3

THE FOUR-YEAR COURSE, FOR DEGREE B.S. (Phar.)

The first three years are the same as for Ph.C., while the fourth year includes economics, pharmacy, chemistry and other approved electives to the amount of 45 credit hours.

THE TWO-YEAR COURSE

Students who can spend only two years in the College of Pharmacy take the regular work of the first year, but are allowed some choice of subjects in the second year.

FIRST YEAR

AUTUMN QUARTER		WINTER QUARTER	
Pharmacy	3	Pharmacy	5
Chemistry	5	Chemistry	4
Botany	3	Botany	3
English	3	English	3
Physical Education or Drill....	1	Physical Education or Drill....	1
<hr/>		<hr/>	
15		16	

SPRING QUARTER

Pharmacy	3
Chemistry	5
Botany	3
English	3
Physical Education or Drill....	1
<hr/>	
15	

SECOND YEAR

AUTUMN QUARTER		WINTER QUARTER	
Pharmacy	4	Pharmacy	2
Pharmacognosy	3	Pharmacognosy	2
Qualitative Analysis	3	Qualitative Analysis	3
Organic Chemistry	3	Organic Chemistry	3
Physiology	2	Organic Preparations	3
Physical Education or Drill....	1	Physiology	2
<hr/>		Physical Education or Drill....	1
16		<hr/>	
		16	

SPRING QUARTER

Pharmacy	4
Pharmacognosy	2
Qualitative Analysis	3
Organic Chemistry	3
Trigonometry	3
Physical Education or Drill....	1
<hr/>	
16	

THIRD YEAR

AUTUMN QUARTER

Pharmacy	4
Physics	4
Quantitative Analysis	4
Bacteriology	4

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WINTER QUARTER

Pharmacy	2
Physics	4
Quantitative Analysis	4
Pharmacology and Materia	
Medica	3
Sanitary Water Analysis.....	2

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SPRING QUARTER

Pharmacy	1
Physics	4
Quantitative Analysis.....	4
Pharmacology and Materia	
Medica	3
Drug Analysis	3

 15

DESCRIPTION OF COURSES

PHARMACY

1. THEORETICAL PHARMACY. Autumn quarter. 3 h.

Lectures and recitations.

An introductory course in pharmacy consisting of a study of the principles of pharmacy with a sufficient number of demonstrations to illustrate their application. This course also includes pharmaceutical arithmetic.

2. OFFICIAL PHARMACY. Winter quarter. 5 h.

Lectures, recitations and laboratory.

A study of the pharmacopœial and national formulary preparations. The student also makes preparations covering the first half of the United States Pharmacopœia.

3. OFFICIAL PHARMACY. Spring quarter. 3 h.

Recitations.

Continuation of Course 2, but without laboratory work.

4. OFFICIAL PHARMACY. Autumn quarter. 4 h.

Recitations and laboratory.

A further study of official compounds covering history, methods of preparation, physical and chemical properties. The laboratory work will include the making of a large number of preparations covering the latter half of the United States Pharmacopœia.

5. OFFICIAL PHARMACY. Winter quarter. 2 h.

Recitations.

A continuation of Course 4.

6. PRESCRIPTIONS AND DISPENSING. Spring quarter. 4 h.

Recitations and laboratory.

A detailed study of the prescription and the art of compounding and dispensing.

7. ADVANCED PHARMACY. Autumn quarter. 4 h.

Laboratory.

An advanced course in pharmaceutical technique in which the student prepares a number of preparations of a difficult nature requiring complicated apparatus and chemical synthesis.

8. HISTORY OF PHARMACY. 2 h.

Readings and recitations.

The study of the evolution of modern pharmacy, the work of the various national organizations. Familiarizing the student with prominent men in pharmacy of both the past and the present.

9. COMMERCIAL PHARMACY. 1 or 2 h.

Readings and recitations.

10. PHARMACY SEMINAR. 1 or 2 h.

Readings and consultations.

A review of current pharmaceutical literature.

11. DENTAL AND TOILET PREPARATIONS. 2 to 5 h.

Laboratory.

A study of the bases, the cleansing and antiseptic properties of, and the methods of manufacturing these preparations.

12. DOMESTIC PREPARATIONS. 1 to 2 h.

Laboratory.

A course covering the methods for manufacturing various preparations such as furniture and metal polishes, washing powders, insecticides, disinfectants, etc.

BOTANY

1. COLLEGE BOTANY. Autumn quarter. 3 h.

Recitations, laboratory, and illustrated lectures.

A general course in botany, dealing especially with the higher plants. Morphology, physiology, and microscopic anatomy are treated, with special attention to such structural features and chemical properties of plants as will best prepare the student for his later study of pharmacognosy.

2. ECONOMIC BOTANY. Winter quarter. 3 h.

Recitations, laboratory, and illustrated lectures.

A study of the more important plants and plant products of economic value; grains, seeds, nuts, fruits, vegetables, textile fibers, tea, coffee, spices, crude drugs; technical microscopy; origin and improvement of cultivated plants.

3. **ADVANCED ECONOMIC BOTANY.** Spring quarter. 3 h.

Lectures and laboratory.

Chiefly the botany of drug plants with study of microscopy of crude drugs.

4. **PROBLEMS IN BOTANY OF DRUG PLANTS.** 5 h.

Students sufficiently prepared will be directed in botanical investigation of new or little known native drug plants.

For elective courses in Botany the student may consult the schedule of the College of Liberal Arts.

PHARMACOGNOSY

1. **PHARMACOGNOSY.** Autumn quarter. 3 h.

Recitations and laboratory.

A study of crude and powdered drugs including their history, origin, classification, constitution, and means of identification.

2. **PHARMACOGNOSY.** Winter quarter. 2 h.

A continuation of Course 1.

3. **PHARMACOGNOSY.** Spring quarter. 2 h.

Continuation of Course 2.

PHYSIOLOGY AND PHARMACOLOGY

1-2. **HUMAN PHYSIOLOGY.** Autumn and winter quarters. 2 h.

Lectures, recitations and demonstrations with laboratory experiments, giving a general knowledge of the structure and functions of the human body.

3-4. **PHARMACOLOGY AND MATERIA MEDICA.** Winter and spring quarters. 3 h.

Recitations and lectures.

Physiological and toxicological actions of chemical substances and their therapeutic uses in medicine.

Prerequisites: Physiology, Official Pharmacy, Organic Chemistry.

BACTERIOLOGY

1. **ELEMENTS OF BACTERIOLOGY.** Autumn quarter. 4 h.

Recitations, lectures and laboratory.

An introductory course dealing with general principles and simple laboratory technique.

Prerequisites: Botany and organic chemistry. Sanitary science is also highly desirable.

CHEMISTRY

1. GENERAL INORGANIC CHEMISTRY.* Three quarters. M. W. F. 10:00. 3 h. Those electing Course 1 must also elect Course 2.

A course of lectures dealing with the laws and theories of Chemistry, together with a study of the elements and their most important compounds.

2. GENERAL INORGANIC CHEMISTRY.* Three quarters. Tu. Th. 8:00 or 1:00. 2 h. This is a laboratory course designed to accompany Course 1.

4. ELEMENTARY QUALITATIVE ANALYSIS. Three quarters. Lectures. M. 11:00; Laboratory, Tu. Th. 9:00 or 1:00. 3 h.

A course in the separation and identification of the more common bases and acids. The lectures deal with the chemistry of the analytical reactions, special emphasis being given to the application of mass-action, ion-product, etc. The course must be continued through at least two quarters.

Prerequisite: Inorganic Chemistry.

6. QUANTITATIVE ANALYSIS. Three quarters. Lectures, Th. 11:00; Laboratory, M. W. F. 9:00 or 1:00. 4 h.

Elementary gravimetric and volumetric analysis, chemical calculations, etc. This course must be continued throughout at least two quarters.

Prerequisite: Course 4, or may be taken with Course 4.

10. ELEMENTARY ORGANIC ANALYSIS. Winter and spring quarters. 3 h.

A course in the separation and identification of pure organic compounds and mixtures, including ultimate organic analysis by combustion, etc.

Prerequisite: courses 4 and 13.

* All students entering the Department of Chemistry and not presenting university credits in general inorganic chemistry must take courses 1 and 2.

11. **SANITARY WATER ANALYSIS.** Any quarter. 8:00 or 1:00. 3 h.
A course in the chemical and bacteriological examination of water with regard to its use for drinking purposes.
Prerequisite: Course 4.
13. **ORGANIC CHEMISTRY.** Three quarters. M. W. F. 9:00. 3 h.
Lectures.
A study of the methods of preparation and the properties of the more important organic compounds. Special stress is laid upon the theories underlying the subject and the proofs of the constitution of most of the substances studied.
14. **LABORATORY PRACTICE IN ORGANIC PREPARATIONS.** Winter and spring quarters. M. W. F. 1:00. 3 h.
A laboratory course in the preparation of typical aliphatic and aromatic compounds.
Prerequisite: Course 13, autumn quarter.
15. **PHYSICAL CHEMISTRY.** Three quarters. M. W. F. 11:00. 3 h.
A lecture course presenting the conceptions of the modern physico-chemical theories concerning the states of aggregation of matter, solutions, thermo-chemistry, equilibria, chemical kinetics, electro-chemistry, and actino-chemistry.
16. **PHYSICAL CHEMISTRY.** Three quarters. M. F. 1:00. 2 h.
A laboratory course supplementing Course 15, consisting of the determinations of densities, molecular weights, thermo-chemical and optical constants, conductivity of solutions, electromotive force, transference numbers, viscosity, surface tension, electro-chemical equivalents, transition points, etc.
18. **FOOD ANALYSIS.** Autumn and winter quarters. 8:00 or 1:00. 3 h.
Lectures and laboratory.
A detailed course giving practice in the official and standard methods for the analysis of foods and the detection of adulterants.
Prerequisite: courses 4 and 13.
19. **DRUG ASSAYING: PHARMACOPŒIAL TESTING.** Autumn and winter quarters. Any three periods. 8:00 or 1:00. 3 h.
A laboratory course giving practice in the official and stand-

ard methods for the identification, determination of purity, detection of adulterants and assaying of official drugs.

Prerequisite: courses 5 and 12.

20. DRUG ASSAYING: ORGANIC ANALYSIS. Autumn and winter quarters. Three periods. 8:00 or 1:00. 3 h.

A laboratory course in the qualitative and quantitative analysis of pharmaceutical and commercial organic products, such as alcohol, ethers, esters, glycerine, soaps, formalin, organic acids, etc.

Prerequisite: courses 4 and 13.

21. DRUG ASSAYING: ALKALOIDAL ASSAYING. Spring quarter. Any two periods. 8:00 or 1:00. 2 h.

Lecture and laboratory course.

A course consisting of all the most important alkaloidal assays and the separation and detection of the alkaloids.

Prerequisite: courses 4 and 13.

22. ADVANCED FOOD ANALYSIS. Any quarter. Any three periods. 8:00 or 1:00. 3 h.

An advanced laboratory course in the official and standard methods of food analysis.

Prerequisite: Course 18.

24. ELEMENTARY BIOCHEMISTRY (PHYSIOLOGICAL CHEMISTRY).^{*}
Spring quarter. Lectures, M. W. F. 9:00; Laboratory,
M. W. F. 10:00 to 12:00. 5 h.

This course is designed primarily for students taking the combined College and Hospital Course for the B.S. degree or the Course in Home Economics.

Prerequisite: Course 13.

MICROSCOPICAL CHEMISTRY

1. MICROCHEMICAL ANALYSIS. 3 h.

A study of the use of the microscope and its accessories. Practice in the examination and analysis of inorganic substances, with reference to rapid qualitative methods and the analysis of minute amounts of material.

^{*} Course 24 is given in the Department of Biochemistry, School of Medicine.

2. MICROSCOPICAL EXAMINATION OF FOODS. 3 h.

The microscopical examination of foods and condiments for the purpose of detecting deterioration, adulteration, and admixture.

Prerequisite: Course 1.

PHYSICS

1. GENERAL PHYSICS.* Lectures, two hours, W. F. 11:00; recitations, two hours. 4 h.

a. Mechanics and Sound; autumn quarter. b. Heat and Light; winter quarter. c. Electricity and Magnetism; spring quarter.

Prerequisite: An elementary knowledge of plane trigonometry.

2. EXPERIMENTAL PHYSICS. One three-hour period per week. 1 h.

Quantitative laboratory work in the subjects indicated in Course 1 a, b, c.

Prerequisite: An elementary knowledge of plane trigonometry.

* Course 1 is an elementary but thorough presentation of the fundamental facts, principles, and applications of modern physics. Although the subject matter is divided for convenience into quarters, students are expected to continue the study throughout the year.

The lectures are fully illustrated by apparatus and by experiments. The recitations are based upon both the lectures and textbook which is studied systematically in parallel with the lectures.

It is strongly recommended that course 2 be taken in parallel with course 1. When not so taken course 1 or its equivalent must precede.

SUMMER QUARTER

FACULTY, 1920

GEORGE NORLIN, Ph.D., President of the University.

MILO G. DERHAM, Ph.D., Director of the Summer Quarter; Professor of Greek.

INSTRUCTORS FROM OTHER INSTITUTIONS

HARTLEY B. ALEXANDER, Ph.D., Professor of Philosophy, University of Nebraska.

DAVID A. ANDERSON, Ph.D., Professor of Education, Pennsylvania State College.

ELIZABETH M. BARKLEY, Pd.B., B.S., Instructor in Art, Lakewood High School, Cleveland, Ohio.

FRANCES E. BOCKIUS, A.B., Instructor in Physical Education, Rockford College.

CALVIN S. BROWN, Sc.D., Ph.D., Professor of Modern Languages and Literatures, University of Mississippi.

ABRAHAM COHEN, Ph.D., Associate Professor of Mathematics, Johns Hopkins University.

VERRAL J. CRAVEN, B.S., Instructor in Home Economics, Carlsbad, New Mexico.

GASTON DOUAY, A.M., Professor of the French Language and Literature, Washington University.

JEROME DOWD, A.M., Director of the School of Social Service; Professor of Sociology, University of Oklahoma.

JEAN L. GARRABRANT, Head of the Department of Art, Lakewood High School, Cleveland, Ohio.

ELSIE I. JAMIESON, A.B., Instructor in Spanish in the Kensington High School for Girls, Philadelphia.

MARGARET KINGERY, Ph.B., Instructor in Division of Home Economics, Iowa State College.

WALTER E. McCOURT, A.M., Dean of the Schools of Engineering and Architecture; Professor of Geology, Washington University.

MILDRED MACARTHUR, Ph.D., Professor of Romance Languages, Drury College.

LEWIS E. MEADOR, A.M., Professor of History, Drury College.

WALTER MILLER, A.M., LL.D., Dean of the Graduate Faculty; Professor of Latin and the Teaching of Latin, University of Missouri.

FRANKLIN C. PALM, Ph.D., Assistant Professor of History, Colorado College.

CLARENCE E. PERKINS, Ph.D., Professor of European History, Ohio State University.

LAURA L. REMER, Ph.B., Critic in Teaching, Kansas Manual Training Normal School.

WILLIAM S. ROE, A.M., Principal of the High School, Greeley, Colorado.

WILSON M. SHAFER, A.B., Superintendent of Schools, Cripple Creek, Colorado.

GUY W. SMITH, Ph.D., Instructor in Mathematics, University of Kentucky.

GLENN F. THISTLETHWAITE, Physical Director High School, Oak Park, Illinois.

LEWIS FRANCIS THOMAS, A.M., Assistant Professor of Geology, Washington University.

ARTHUR G. VESTAL, Ph.D., Head of Department of Biological Sciences, Illinois State Normal School.

CORA M. WINCHELL, B.S., Assistant Professor of Household Arts Education, Teachers College, Columbia University.

INSTRUCTORS FROM THE UNIVERSITY OF COLORADO

JOHN D. FLEMING, A.B., LL.B., LL.D., Dean of the School of Law; Charles Inglis Thomson Professor of Law.

EDWARD JACKSON, A.M., M.D., Sc.D., Professor of Ophthalmology.

JAMES F. WILLARD, Ph.D., Professor of History.

OLIVER C. LESTER, Ph.D., Dean of the Graduate School; Professor of Physics.

FRANK E. THOMPSON, A.B., Director of the College of Education; Professor of Education.

ROSS C. WHITMAN, A.B., M.D., Secretary of the School of Medicine, Boulder Division; Professor of Pathology.

JOHN S. MCLUCAS, A.M., Professor of English.

LAWRENCE W. COLE, Ph.D., Director of the College of Home Economics and Social Service; Professor of Psychology.

JAMES C. TODD, Ph.B., M.D., Professor of Clinical Pathology.

FRED G. FOLSOM, A.B., LL.B., Professor of Law.

WILLIAM R. ARTHUR, A.B., LL.B., Professor of Law.

ARNOLD J. LIEN, Ph.D., Professor of Political Science.

ROBERT C. LEWIS, Ph.D., Director of Henry S. Denison Research Laboratory; Professor of Biochemistry.

JAY W. WOODROW, Ph.D., Professor of Physics.

IVAN E. WALLIN, Sc.D., Professor of Anatomy.

GEORGE F. REYNOLDS, Ph.D., Professor of English Literature.

FRANK WILBUR CHACE, Mus. Doc., Acting Professor of Music.

MELVILLE BLACK, M.D., Associate Professor of Ophthalmology.

C. HENRY SMITH, Ph.B., Librarian; Associate Professor of Bibliography.

CARL C. ECKHARDT, Ph.D., Associate Professor of History.

FRANK G. ALLEN, B.S. (M.E.), Associate Professor of Engineering Drawing.

IVAN C. CRAWFORD, C.E., Associate Professor of Civil Engineering.

GEORGE H. LIGHT, Ph.D., Associate Professor of Mathematics.

THOMAS MAITLAND MARSHALL, Ph.D., Associate Professor of History.

OSCAR A. RANDOLPH, Ph.D., Associate Professor of Physics.

W. CLINTON DUVAL, B.S. (E.E.), Associate Professor of Electrical Engineering.

FRANK E. E. GERMANN, DE. ès Sc., Associate Professor of Chemistry.

WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.

PAUL M. DEAN, Ph.D., Assistant Professor of Chemistry.

WALTER F. MALLORY, B.S. (M.E.), Assistant Professor of Mechanical Engineering.

FRANCIS WOLLE, A.M., Assistant Professor of English Literature.

IRENE P. MCKEEHAN, A.M., Assistant Professor of English.

WILLIAM C. FINNOFF, M.D., D.Oph., Lecturer on Ophthalmology.

EMILY WOOD EPSTEEN, Acting Dean of Women (Summer, 1920);
Lecturer and Extension Instructor in Story-Telling and Children's Literature.

CLARE H. SMALL, A.B., Director of Physical Education for Women.

MABEL SMITH REYNOLDS, A.M., Instructor in Public Speaking (Summer, 1920).

CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.

CHARLES M. MCCORMICK, E.E., Instructor in Electrical Engineering.

WILLIAM H. CRISP, M.D., D.Oph., Instructor in Ophthalmology.

EDWARD R. MUGRAGE, A.M., M.D., Director of Laboratories (Denver);
Instructor in Pathology.

MAUD E. CRAIG, A.M., Instructor in Latin and Greek.

GLADYS C. CURTIS, A.M., Instructor in Education.

SUSAN BLAKEY, A.B., B.S., Instructor in Home Economics.

HORACE B. VANVALKENBURGH, M.S., Instructor in Chemistry.

WAYNE S. BEATTIE, B.S. (M.E.), Instructor in Mechanical Engineering.

CLARA HISCOCK BRACE, A.B., Instructor in Education.

HENRY M. SAYRE, Instructor in Accounting.

JOHN A. McCAW, M.D., D.Oph., Instructor in Ophthalmology.

WILLIAM A. SEDWICK, M.D., Instructor in Ophthalmology.

HIRAM R. STILWILL, M.D., Instructor in Ophthalmology.

MAY SNYDER, A.M., Instructor in Romance Languages.

CHARLES A. HUTCHINSON, A.M., Instructor in Engineering Mathematics.

HUGH M. KINGERY, Ph.D., Instructor in Anatomy.

FRED R. DUNGAN, B.S., Instructor in Civil Engineering.

MAURICE KATZMAN, M.D., Instructor in Bacteriology.

LEONA VINCENT, A.B., Instructor in Psychology.

HERBERT C. HANSON, A.M., Instructor in Biology.

R. D. McKELL, Instructor in Shop-Work (Summer, 1920).

H. J. BOWHAY, Instructor in Shop-Work (Summer, 1920).

RAMA V. BENNETT, B.S., Assistant in Home Economics.

WILLIAM M. BANE, M.D., Assistant in Oto-laryngology.

JAMES M. SHIELDS, M.D., Assistant in Ophthalmology.

CHARLES E. WALKER, M.D., Assistant in Ophthalmology (Summer, 1920).

RALPH HUBBARD, A.B., Assistant Curator of the Museum (Summer, 1920).

FLORENCE DODGE, Assistant in Education (Summer, 1920).

FRED E. HAGEN, A.B., Secretary and Registrar.

FRANK H. WOLCOTT, B.S., Secretary of the Board of Regents and Bursar.

GENERAL STATEMENT

PURPOSE AND ORGANIZATION

The Summer Session was established in 1904; a regular summer quarter was organized in 1919. Courses in the Denver Division of the School of Medicine were first offered in 1912.

The summer quarter serves the needs of the following classes of students: (1) teachers and others who are not able to attend during the academic year; (2) regularly matriculated students who desire to supplement the work of the regular session; (3) students whose entrance preparation is deficient; (4) those who wish to review or extend their acquaintance with certain subjects without credit.

ADMISSION

The admission requirements for the summer quarter are the same as for the regular session. See pages 26-32. Credentials should be presented to the Registrar before the time of registration. Advanced standing will not be given until a student has completed satisfactorily one quarter in this University. Teachers may be admitted as special students. Students who elect only courses which do not count toward a degree in the University may also be admitted as special students. Special students are not required to present credentials. If they later fulfill the entrance requirements they may become candidates for degrees.

It should be noted, however, that no graduate credit is given except to persons whose credentials have been previously accepted for admission to the Graduate School.

An auditor's ticket is issued to those who wish to attend courses or lectures without examination or formal credit.

RELATION OF THE SUMMER WORK TO THE COLLEGE OF EDUCATION

The summer quarter constituency is largely made up of superintendents, principals, and teachers. In recognition of this fact there are teachers' courses in many departments and other courses

conducted with a view to emphasizing educational methods and principles. Ample provision is made for those desiring to take work counting toward the thirty hours of professional training prescribed by the Colorado Certification Law.

UNIVERSITY EXTENSION DIVISION

The University Extension Division provides an opportunity to students who cannot attend the University during the regular academic year, to continue work begun in the Summer Quarter. Announcement of University Extension courses may be obtained from the Registrar of the University.

PUBLIC LECTURES

Open lectures are given every afternoon or evening each week, affording students the opportunity of hearing speakers of eminent attainments in educational, literary, and scientific lines.

ADVANTAGES OF CLIMATE AND SURROUNDINGS

The climate and surroundings of Boulder afford exceptionally favorable conditions for summer study and recreation. The days are never uncomfortably warm; the nights are always cool. The air is dry and invigorating. On every side the scenery is varied, grand, and beautiful.

EXERCISE AND RECREATION EXCURSIONS

The University gymnasium, the tennis courts and athletic field are open for the use of the students of the Summer Quarter. The region about Boulder offers abundant opportunities for mountain climbing. There are also conducted excursions each week, for students and faculty, to points of interest.

UNIVERSITY CAMP

The University during the Summer Quarter maintains a permanent camp at Arapahoe Falls, about twenty-five miles from Boulder, in one of the most attractive regions in the Rocky Mountains. Camping facilities by the day, week, or month, are provided at cost. Trips will be arranged for each week end and can be taken for a total cost of from four to six dollars.

FEES

The tuition fee which does not vary with the number of courses taken is \$12.50 each term for residents of Colorado; \$15.00 each term for non-resident students. For the courses in Ophthalmology at Denver, a fee of \$50.00 is charged. A registration fee of \$2.00 is paid once by every student for each quarter or for a single term. Students electing courses in Education pay a library fee of \$1.00 for each course. A laboratory fee of \$4.00 is charged for each laboratory course in Chemistry. Laboratory fees are charged in other laboratory courses, as stated in the description of these courses. For those who wish to attend courses or lectures without examination or formal credit, an auditor's ticket is issued at the regular tuition rate.

Admission to the classes is restricted to duly registered students and to those holding auditor's tickets.

ACCOMMODATIONS

The price for good board near the Campus varies from \$6.00 to \$10.00 a week. Rooms may be obtained for \$3.00 a week. By the formation of boarding clubs or by doing light housekeeping, expenses are materially reduced. The Registrar has a list of desirable boarding and rooming places and will supply information upon application.

REDUCED RAILWAY RATES

Low excursion rates for the summer may be given by all the railways from eastern and southern points to Colorado.

Those who wish to take advantage of them are advised to apply to their local agents.

SUMMER QUARTER, 1920

The first term of the 1920 summer quarter opens June 14 and closes July 21; the second term opens July 22 and closes August 28. It is desirable that students register June 11 or 12. Final examinations are held July 19-20 for the first term, and August 27-28 for the second term for all students who wish credit certificates for their work.

Courses in Liberal Arts, in Medicine, in Engineering and in Law are offered at Boulder; courses in Ophthalmology, in the Denver Division of the School of Medicine.

CREDITS

Courses carried through the whole quarter carry the same credit as similar courses in any other quarter. Courses carried through one term only, carry half credit.

ADDITIONAL INFORMATION

The Announcement of the Summer Quarter will be sent upon request.

COURSES*

COLLEGE OF LIBERAL ARTS AND GRADUATE SCHOOL

Courses are offered in the following departments:

Americanization, Anatomy and Sanitary Science, Art, Bacteriology, Biochemistry, Biology, Chemistry, Classics, Drawing and Public School Art, Economics and Sociology, Education, English, Geology and Geography, Germanic Languages, History, Home Economics, Library Science and Practice, Mathematics, Music, Ophthalmology,† Philosophy, Physical Education, Physics, Political Science, Psychology, Public Speaking and Reading, Romance Languages, Story Telling.

COLLEGE OF ENGINEERING

Courses are offered in the following departments:

Civil Engineering, Electrical Engineering, Mechanical Engineering, Shop Work, General Engineering Drawing, Engineering Mathematics.

SCHOOL OF MEDICINE

Courses are offered in the following subjects:

Anatomy, Bacteriology, Biochemistry, Blood Chemistry, Clini-

* For description of courses see Announcement of the Summer Quarter.

† For description of Graduate courses in Ophthalmology, see special announcement of the Department of Ophthalmology.

cal Laboratory Methods, Histology, Embryology, Advanced Pathology, Short Course for Practitioners in Medicine, Technique of the Wasserman Test.

SCHOOL OF LAW

Courses are offered in the following subjects:

Evidence, Contracts, Common Law Pleading, Mines and Mining, Constitutional Law, Wills.

ELEMENTARY AND HIGH-SCHOOL COURSES

University Training School, Cor. College Avenue and 11th Street.
(Elementary Courses).

State Preparatory School, Cor. Pearl and 17th Streets.
(High-School Courses.)

These Schools are conducted by the College of Education of the University of Colorado and the Boulder Board of Education as ungraded schools, six weeks, June 14 to July 24. Instruction is offered pupils of any grade, from the first to the twelfth, in all the usual elementary and high-school subjects. This meets the needs of those who lack some of their college entrance credits; of those who may have failed of promotion; of those who are passing into a higher grade, but require help in some of their more difficult subjects; of those who are able to do more rapid work; and of those who wish extra work.

Not only is great care given to subject matter, but all pupils receive special attention with a view to improvement in habits and methods of study; all are taught as far as possible how to learn, especially how to work at home.

For the younger children, three to seven years of age, there is a kindergarten school, conducted as far as is feasible, in the open air. The exercises are calculated to give the pupils good interests and make them self-helpful.

REGISTRATION

Registration will take place from 8:30 to 11:30 a. m., June 11 and 12, Room 17, Liberal Arts Building, University of Colorado, or at the Schools.

FEES

The fees are as follows:

Kindergarten—\$5.00 for the course. Elementary School subjects, First to Fourth Grades—\$3.00 per course. Fifth to Eighth Grades—\$4.00 per course. High-school Courses—\$8.00 for one course; \$15.00 for two courses.

ADDITIONAL INFORMATION

Further information about these Schools will be given by the Director of the College of Education.

UNIVERSITY EXTENSION DIVISION

FACULTY

GEORGE NORLIN, Ph.D., President of the University.

LORAN D. OSBORN, Ph.D., Director; Professor of Sociology.

ELMORE PETERSEN, A.B., Secretary of the Bureau of Business and Commercial Development.

ALMA GABRIEL, A.B., Secretary of the Bureau of Correspondence Instruction.

CHARLES I. MADISON, Ph.B., Secretary of the Bureau of Community Welfare.

HENRY R. SPANGLER, Secretary of the Bureau of Americanization.

C. HENRY SMITH, Ph.B., Librarian of the University; Secretary of the Bureau of Library Extension.

*OTHO B. STAPLES, A.M., Superintendent, Western Colorado District.

GEORGE C. MANN, A.B., Vocational Instructor.

JOHN J. FALLON, C.E., Vocational Instructor.

AMY MUSE, A.B., Office Secretary.

The Faculty includes also Professors and Instructors in the various University departments who give Extension courses or lectures, together with special Extension Instructors appointed to conduct classes in various centers throughout the State.

NON-RESIDENT INSTRUCTIONAL STAFF

RALPH HUBBARD, A.B., *Denver*, Extension Instructor in Nature Study.

R. J. WALTERS, A.B., *Rocky Ford*, Extension Instructor in Sociology.

O. B. DRAKE, A.B., B.S., *Canon City*, Extension Instructor in Sociology.

* In co-operation with Colorado State Teachers' College and Colorado State Normal School.

M. G. YOUNG, A.B., *Florence*, Extension Instructor in Sociology.

H. H. DONLEY, A.B., *Frederick*, Extension Instructor in Mining Mathematics.

E. H. WHILES, *Frederick*, Extension Instructor in Gases and Ventilation.

BEN DUBOFF, *Frederick*, Extension Instructor in Mining Mathematics.

ARTHUR J. CRAIG, Pd.B., *Erie*, Extension Instructor in Mining Mathematics.

CHARLES BILLINGTON, *Erie*, Extension Instructor in Gases and Ventilation.

FRANCES E. KETTLE, *Erie*, Extension Instructor in Home Economics.

JULIA B. FRANKLE, A.B., *Lafayette*, Extension Instructor in Mining Mathematics.

NEIL G. BORDEN, A.B., *Lafayette*, Extension Instructor in Mining Mathematics.

DAVID HENDERSON, *Lafayette*, Extension Instructor in Gases and Ventilation.

FRANK OBERDING, *Louisville*, Extension Instructor in Gases and Ventilation.

THOMAS GIBBY, *Superior*, Extension Instructor in Gases and Ventilation.

H. B. SAXTON, A.B., *Eaton*, Extension Instructor in Sugar Technology.

H. E. BLACK, *Eaton*, Extension Instructor in Economics and Shop Mathematics.

PAUL MCCREARY, B.S. *Eaton*, Extension Instructor in Shop Mathematics.

F. F. GAZELLE, B.S., *Eaton*, Extension Instructor in Blue Print Reading.

HOWARD A. LANG, B.M.E., *Greeley*, Extension Instructor in Shop Mathematics, Sugar Technology, and Blue Print Reading.

WALDO W. NORRIS, *Greeley*, Extension Instructor in Shop Mathematics.

A. F. GORDON, *Greeley*, Extension Instructor in Sugar Technology.

B. E. FOSTER, B.S. (M.E.), *Fort Morgan*, Extension Instructor in Shop Mathematics.

MAREUS SHERRILL, B.S. (Ch.E.), *Fort Morgan*, Extension Instructor in Blue Print Reading, and Shop Mathematics.

PHILIP KOLLER, B.S., *Fort Morgan*, Extension Instructor in Sugar Technology.

GEORGE GOLDFAIN, E.M., *Fort Morgan*, Extension Instructor in Sugar Technology.

J. I. GLENDENNING, JR., B.S. (M.E.), *Brush*, Extension Instructor in Blue Print Reading and Shop Mathematics.

ELMER MCCLINTOCK, *Brush*, Extension Instructor in Sugar Technology.

J. T. DAVIS, A.B., *Brush*, Extension Instructor in Sugar Technology.

C. H. STONE, A.B., *Sterling*, Extension Instructor in Shop Mathematics.

LEWIS WIND, A.B., *Sterling*, Extension Instructor in Sugar Technology.

GUY WEYBRIGHT, *Sterling*, Extension Instructor in Sugar Technology.

C. O. MULDER, A.B., *Sterling*, Extension Instructor in Blue Print Reading and Shop Mathematics.

W. W. ROBBINS, A.B., *Longmont*, Extension Instructor in Shop Mathematics.

REX E. BECKETT, *Longmont*, Extension Instructor in Shop Mathematics and Blue Print Reading.

G. M. DRUMMOND, *Longmont*, Extension Instructor in Sugar Technology.

R. F. BRISTOL, *Longmont*, Extension Instructor in Sugar Technology.

CHARLES M. WELLER, B.S., *Loveland*, Extension Instructor in Shop Mathematics.

RONALD H. PETERS, *Loveland*, Extension Instructor in Shop Mathematics.

H. L. ALDRICH, B.S. (M.E.), *Loveland*, Extension Instructor in Blue Print Reading.

SAM MOONEY, *Loveland*, Extension Instructor in Sugar Technology.

CHARLES S. SCOTT, A.B., *Loveland*, Extension Instructor in Sugar Technology.

ARTHUR N. BENNETT, M.S., *Fort Collins*, Extension Instructor in Shop Mathematics.

GEORGE E. STEVENS, B.S., *Fort Collins*, Extension Instructor in Shop Mathematics.

S. T. MILLER, *Fort Collins*, Extension Instructor in Sugar Technology.

H. A. ENGLAND, B.S., Extension Instructor in Blue Print Reading.

G. J. DALEY, C.E., *Fort Collins*, Extension Instructor in Sugar Technology.

E. ORREN PRESTON, A.B., *Windsor*, Extension Instructor in Shop Mathematics.

L. J. THOMPSON, A.B., *Windsor*, Extension Instructor in Shop Mathematics and Sugar Technology.

WILLIAM BARBER, *Windsor*, Extension Instructor in Sugar Technology.

JOHN G. TRACEY, *Brighton*, Extension Instructor in Shop Mathematics.

PAUL S. BAILEY, B.S. (C.E.), *Brighton*, Extension Instructor in Shop Mathematics.

E. J. MATTESON, *Brighton*, Extension Instructor in Sugar Technology.

GENERAL STATEMENT

The Extension Division was organized in 1912. It aims to make the campus of the University coextensive with the State, in keeping with the new idea that a state university exists for all the people and not for a favored few alone.

The various departments of the University have at their disposal material that can be of great value in the development of the resources of the State. The Extension Division endeavors to connect the University departments with the people who wish to utilize these resources. This is done through two main departments, with various subdivisions, as appears in the following outline of Extension activities:

I. Department of Instruction:

- Correspondence Instruction.
- Class Instruction.
- Vocational Instruction.
- Lectures and Visual Instruction.

II. Department of Public Service:

- Community Welfare.
- Business and Commercial Development.
- Americanization.
- Library Extension.
- Municipal Information.
- Publications.

DEPARTMENT OF PUBLIC SERVICE

The Department of Public Service deals with those more informal phases of public education and community welfare which cannot be adequately met by courses of formal instruction.

Lectures by members of the University faculties and others are arranged, separately and in courses, covering a wide range of subjects. Stereopticon slides and picture films of an educational character are furnished, at cost of transportation, for use in the public schools and in entertainments that are of interest to both pupils and parents.

Assistance is given to communities throughout the State, upon request, in solving the new problems that have arisen in our complex modern life. Community Welfare Conferences are held, involving a preliminary study or social survey of the town, a cooperative conference program of three or four days' duration, and a community welfare exhibit. A special bulletin, published by the Bureau of Community Welfare, will be sent upon request.

Through the Department of Education, cooperating with superintendents and groups of teachers, a comparative study is made of school systems and the educational principles involved, and other kinds of assistance are rendered to public schools.

Through the University Library, books and package libraries are sent to high schools, clubs, and individuals. Inquiries for information are answered from the resources of the library and the various departments of the University. In writing for material from the library, address, University of Colorado Library.

Business Short Courses are conducted, either in connection with conventions of business men, or at sessions meeting for this special purpose. Each course covers a period of three or four days and treats the various aspects of modern business problems.

Business surveys are made with the purpose of determining the commercial resources and trade possibilities of a community.

Classes in business subjects are organized and conducted and cooperative work is undertaken with commercial clubs. Stores and business firms are visited for the purpose of rendering individual assistance in meeting their business problems, and the results are discussed with the interests concerned.

Americanization work is carried on with various foreign groups throughout the State. Classes in English and Citizenship, American History, and Government are formed, and an attempt is made to assist the foreigner in his efforts to become an American citizen.

Information concerning municipal interests and problems and comparative data concerning various municipal enterprises are furnished for the convenience of city officials.

Bulletins are published from time to time making available to the public the results of investigations carried on by members of the University faculties.

DEPARTMENT OF INSTRUCTION

The Department of Extension Instruction offers formal courses by correspondence and in classes, to such persons as wish to engage in systematic study without leaving home or giving up their regular occupations.

Both academic and vocational courses are given. The academic courses cover a large part of the regular curriculum of the College of Liberal Arts, and, in general, receive credit which applies toward a university degree. Courses in secondary education are also offered, particularly for the benefit of those beyond the high-school age or living where a high school is not accessible.

The vocational courses are intended more especially for men and women in offices, stores and industrial life who desire to increase the value of their work and to gain a better understanding of its correlation with the business world in general. The daily task and the study of the educational principles underlying it thus supplement each other. The vocational courses are granted recognition by means of a University Extension certificate.

A course of study of an informal nature has been arranged for mothers. This course covers a period of two years, taking the child from the time of conception up to the second year. The registration fee is nominal so that the course may be available to all mothers.

Courses in clinical laboratory methods are given as a part of the work of the Department of Clinical Pathology of the School of Medicine. They are intended primarily for practicing physicians and for nurses. Special bulletin will be sent upon request.

Programs for clubs and organizations are furnished, upon request. Programs can be prepared along any desired line, if sufficient time is allowed, but the following are available at any time: Various periods of English and American Literature, with typical readings; Literature of the Great War; The Effect of the War on Education; Woman's Place in Reconstruction; The League of Nations; The Peace Conference, and the Nations Affected by It.

CORRESPONDENCE INSTRUCTION

UNIT OF WORK AND UNIVERSITY CREDIT.—When the work given by correspondence is of University grade and college entrance requirements have been fulfilled, it is granted University credit of equal value to that done in residence. A course that consists of forty assignments is granted seven and one-half hours' credit toward the 186 hours required for the A.B. degree; a course of thirty-two assignments, six hours' credit; a course of twenty-four assignments, four and one-half hours' credit; and a course of sixteen assignments, three hours' credit. It is estimated that a course of forty lessons will require a minimum of one hour of study a day, six days in the week, for forty weeks. The unit of work is thus a course divided into eight assignments, involving one and a half hours' credit, and requiring about one hour's study a day for a period of eight weeks. One-fourth of the work for the A.B. degree may be done in the Extension Division.

INSTRUCTORS.—Correspondence instruction is carried on under the immediate supervision of the members of the University faculty.

METHOD.—The student who desires to undertake correspondence-study should enroll directly with the University Extension office upon blanks furnished for that purpose on application. After the enrollment has been duly completed, assignments of lessons prepared by the instructors will be sent to the student, together with directions concerning textbooks, study, outline work, and such other details as may be deemed helpful. The student may begin his course at any time and proceed with the work as fast as he wishes. An examination is given at the end of the course.

WORK, PARTLY BY UNIVERSITY EXTENSION, FOR MASTER OF ARTS DEGREE.—For information regarding requirements for the Master of Arts degree in connection with University Extension Work, see page 190.

EXPENSES.—The fee for each correspondence course of forty lessons is \$20.00; for a shorter course the fee is proportionately less—that is, a course of twenty-four lessons, is \$12.00, and a course of sixteen lessons, \$8.00. The unit of reckoning is a course of eight assignments, involving one and a half hours' credit, and costing

\$4.00. Where several courses are taken at one time, there is a reduction of 25 per cent. on all fees in excess of \$20.00. The fees are payable in advance. The textbooks are purchased by the students themselves, as is done by resident students. Reference books are loaned by the University Library so far as its resources will permit.

CLASS INSTRUCTION

ORGANIZATION AND MEETINGS.—University Extension Classes are organized in places where groups of students may wish to study the same course together. The class meets in the evening, late afternoon, or on Saturday, and for as many sessions as the course studied may require. The class should enroll directly with the University Extension office upon blanks furnished for that purpose on application, after which, other details of organization will be completed.

CREDIT.—Where University credit is involved, the class usually holds a double-period session (100 minutes) each week during the school year, or for any part of the year. The work approximates as closely as possible that taken in residence—in the quality of work done, the conduct of the courses, the time required of the student for preparation, and the amount of credit given.

Upon the completion of such a course and the passing of a satisfactory examination, the work will receive the same credit as a similar course taken at the University, namely, six hours for the academic year, or three hours for half a year. If the class prefers, sessions may be held less frequently than once a week, or for a shorter period than 100 minutes; in which case credit will be allowed in proportion.

INSTRUCTORS AND CLASS LEADERS.—The classes are conducted under the supervision of the heads of the appropriate departments at the University, but with different arrangements in different places so far as local leadership is concerned:

1. With a University instructor, when the class is located in a town near the University.
2. With a local instructor of University qualifications, when the class is too far away to be reached by an instructor from the University.

3. With a class leader, when a group of students may wish to unite for study where no qualified instructor is available in the subject desired. In this case, one of the members of the class is appointed class leader, and the course is conducted directly with the University by correspondence.

FEES.—The fees for class instruction in academic courses are \$10.00 per student for a class meeting weekly for a double period throughout the school year (six credits, in credit courses); or \$5.00 for such a class conducted half the year (three credits, in credit courses); or in the same proportion for classes meeting less frequently or for a shorter recitation period.

The fees for instruction in business and technical classes are at the uniform rate of fifty cents per lesson, making a course of ten lessons cost each student \$5.00; sixteen lessons, \$8.00, and so on in the same proportion.

EXTENSION COURSES

Courses are offered in the following departments: Art, Biology, Business, Chemistry, Citizenship, Civil Service, Economics, Education, Engineering (Civil, Electrical, and Mechanical), English Language, English Literature, French, German, Greek, History, Latin, Mathematics, Medicine (Clinical Laboratory Methods), Philosophy, Physics, Psychology, Sanitary Science, Sociology, and Spanish. Other courses can usually be arranged upon application.

Students interested are requested to write for a special bulletin containing details concerning courses offered.

GRADUATES

DEGREES CONFERRED, JUNE 6, 1917

GRADUATES OF THE TRAINING SCHOOL FOR NURSES

Gladys Dae Crain
Emma Giger
Florence Isobel Henderson

Olga Amalia Jacobsen
Adda May Sheckell

PHARMACEUTICAL CHEMIST

Ruth Bigelow
Joseph Aloysius Brady
Carl Willis Husted
Albert A. Moule

Ned Kenneth Myers
Edwin Wright Redding, Jr.
Everett Lee Scott
Walter Milton Scott

BACHELOR OF SCIENCE IN PHARMACY

Ruth Bigelow
Mattie Elizabeth Dean

Russell Newton Loomis

BACHELOR OF SCIENCE (Ch.E.)

Jerome Stanley Marcus

BACHELOR OF SCIENCE (M.E.)

Wayne Stephenson Beattie
with honors
Harold James Brunton
with honors
Warren Childs Burgess
with honors
Arthur Gus Collins

John Landon Fertig
with special honors
Bryant Edgar Foster
Joseph Buskirk Johnson
George Henry Krueger
Harlow Case Platts
John William Schwend

BACHELOR OF SCIENCE (E.E.)

Standish Edmund Berry
George Cecil Brierley
Charles Clarence Clymer
with honors
Norman Hubert Coit
Harold Lee Eastman
Thomas Clarence Ekrem
Morse Evans Hardenbrook
Allen Ellsworth Hinkle
Victor Eugene Leroy
with honors
Douglas Stuart McCrum
Steere de Montfort Mathew
James Milroy
William Scott Morrison

Arnold Ervin Perreten
with honors
Cranston Bourquin Rader
Stanley Morton Reed
Herbert Ray Shimeall
Philip Breen Short
with honors
Maurice Ulysses Shugren
Horace Malcolm Root Smith
with honors
Yoshio Tashima
Frederic Hartzell Woolley
Hubert Alexander Wynn
with honors

BACHELOR OF SCIENCE (C.E.)

Waldo Emerson Brockway
with special honors
Charles Kenneth Curry
Howard Gray Curtis
with special honors
Samuel Williams Dunford
Martin Joseph Dwyer
Lester Carpenter Hibbard
with special honors
William Charles Kettle
Ernest Frank Kraxberger
with special honors

Thomas Edward Lutz
with honors
Earl Alfred Rapp
with special honors
George William Serat
with special honors
Herman Gross Strauss
with honors
Leland Burdette Van Arsdall
with special honors

BACHELOR OF ARTS

Lorena Accola
Dorothy Eleanor Adams
cum laude
Dessie Robertson Barrows
Harry Randall Beard
Philip Walling Brown
*Alice Valentine Canter
cum laude
Winifred Castle
†Elbridge Gerry Chapman, Jr.
*Anna Parsons Chase
*Ella May Chenault
Hazel A. Clampitt
cum laude
*Bennie Margaret Davis
*Ella Clara Davis
Monnett Bain Davis
Gladys Dickey
*Gladys Katherine Drach
cum laude
Evelyn Louise Drinkwater
Frederick Francis Duggan
Maude Louise Eckel
cum laude
Ruth Elizabeth Eckel
Henrie-May Patrick Eddy
cum laude
Katharine Edmonds
cum laude
Ruth Elizabeth Edwards
cum laude
Nathalie Marie Ekrem
cum laude
Michael Factorovich
Paul Robert Farrington
magna cum laude
*Gladys Wilson Fawcett
cum laude
Wallace Franz Fiske
Marjorie Elizabeth Fleming
cum laude
Harry Emerson Fowler
Verna Belle Fye
cum laude

*Alma Gabriel
Dorothy Gardiner
magna cum laude
Mary Adelia Garvin
Lawrence Elmer Goss
Herman Coddington Graves
Horace Granville Harvey, Jr.
*Irene Hastings
Thomas Edward Higgins
Hannah Clara Hilderman
magna cum laude
*Corinne Louise Holman
cum laude
*Florence Irene Housel
Jessie Irving Howard
William Foss Hunter
Bertram Barr Jaffa
Mildred Eleanor Kamman
*Grace Menedora Kenehan
*Florence Helen Kluss
*Helen Franc Kohler
*Clara Kraemer
cum laude
Joseph Samuel Landers
*Ethel Gertrude Lewis
cum laude
James David Lewis
Ruth Marie Long
*Josie May Loveless
*Gladys Parker Low
cum laude
Wilfreda Heald Lytle
William Clayton Lytle
*Jeanie Rae McCall
*Louise McCormac
cum laude
Paul Joseph McIntyre
cum laude
*Mary Elizabeth McKibben
†Willis Mitchell Marshall, Jr.
*Genevieve Lucille Marvin
Julia Aline Maupin
Lucile May Morrison
cum laude

* These candidates received also the Bachelor's Diploma in Education.
Gladys Amelia Young, A. B. 1916, also received the Bachelor's Diploma in Education.

† These candidates received also the Bachelor's Diploma in Commerce.

- Frank Leslie Neisler
 *Irene Achsah Norton
 Marian Nutt
 Elma Tomena Oren
 John Adam Patton
 Paul Alvin Paulson
 Margaret Mary Pratt
 Richard Craig Price
 †Robert Hart Purcell
 Lester Max Rachofsky
 cum laude
 *Louise Cowlin Reichelt
 Paul Ellsworth Remington
 magna cum laude
 *Elizabeth Scott Richardson
 cum laude
 Glenwood Coblenz Roe
 Robert Alexander Ross
 Ben Wright Rowland
 Joseph Brenald Salberg
 *Anita Florence Sargent
 John Alexander Sawhill
 Jack Garrett Scott
 cum laude
 Leo Seubert
 Mung Chin Shen
 Opal Smith
 cum laude
 Emily Timberlake Spray
 *Mary Doris Stratton
 cum laude
 *Elizabeth Alma Swanson
 Barbara Tawney
 Juanita Temple
 cum laude
 Mabel Fern Terwilliger
 *Helen Elizabeth Thompson
 Eleanor Margaret Tucker
 cum laude
 Stanley Thomas Wallbank
 Arthur Howard Warner
 cum laude
 Jesse G. Warrington
 Mary Rosamond Wells
 *Marie Wickert
 cum laude
 *Doris Probst Woods
 *Lucile Yates
 Lucretia Helm Yeaman
 cum laude

BACHELOR OF LAWS

- Alfred William Dulweber
 Edward Henry Ellis
 Myron Collins Herrick
 Paul LeBrock Littler
 William Henry Malone, Jr.
 Raymond Mirick Sandhouse
 Bernard Johnson Seeman
 Frederic Putnam Storke
 John McKee Stratton
 Melvin Lockett Sutley
 Harry Clinton Wray

DOCTOR OF MEDICINE

- Kirk Charles Brown
 Cyrus Everette Bush
 Albert Warner Dewey
 George Kinney Dunklee
 William Abraham Epstein
 William Donaldson Fleming
 Hazel Freed
 Paul Victor Greedy
 Constantine F. Kemper
 Elwood Best Lynch
 Franklin Joseph McDonald
 Stephen Gainsford Rothwell
 Joseph Brenald Salberg
 Reuben Schachet
 William Wesley Sloan
 Leo Tepley
 †Fred Lee Ullery
 Deane Harold Vance
 William Ewing Vandevere
 Pattison Albert Waters
 Myron Gilmore Wright

MECHANICAL ENGINEER

- Charles Gilbert Martinson, A.B. 1908, Friends University; B.S. (M.E.)
 1912, University of Kansas.

MASTER OF ARTS

- Dorothy Eleanor Adams, A.B. 1917, University of Colorado.
 Bertha Ellis Bridges, Ph.B. 1906, Denison University.
 Lois Fern Hull, A.B. 1913, University of Kansas.

* These candidates received also the Bachelor's Diploma in Education.
 Gladys Amelia Young, A. B. 1916. also received the Bachelor's Diploma
 in Education.

† These candidates received also the Bachelor's Diploma in Commerce.

‡ Deceased.

BACHELOR OF SCIENCE (C.E.)

Joseph Nathaniel Anderson
with honors
Arthur James Boase
with honors
James Philip Boylan
Charles Matthew Brown
William Felker Brubaker
with honors

Raymond Earl Eckel
with honors
Justus Clifford Hum
with special honors
Walter Thomson Morrow
Meyer Rifkin

BACHELOR OF ARTS

*Reine Nellie Adams
Wilbur Wolf Adams
Charlotte Belle Spencer Allen
*Ruth Adelia Anderson
Hazel Irene Andrews
magna cum laude
Charlotte Frances Atwood
magna cum laude
Sarah Frances Bailar
*Esther Baum
Hertha V. Baumgartner
†Howard Chester Beresford
Hazelle Ethelynn Brazil
cum laude
George Earl Brinkley
Lucile Berkeley Buchanan
Ethel June Campbell
Emmett Bryan Carmichael
Zilpha Mary Carruthers
magna cum laude
Maud Mae Cluphf
Florence Elizabeth Dempsey
Sarah Elizabeth Dinsmore
*Marian Anna Douds
cum laude
Isabella Ivy Duggan
cum laude
Lucile Olga Erickson
Rosalina Espinosa
*Winifred Mae Fordham
Isador Goldbloom
William McKean Greig
Walter Luke Grutter
cum laude
Gladys Rebecca Hagee
*Adalia Haass
cum laude
Ada Geneva Hall
cum laude
*Mary Stella Hall
cum laude
Mildred Herman
William Henby Hill
Bertha Myra Hoskins
Floyd Nelson House
cum laude

Albert Sydney Isbill
Philip Claris Kemp
magna cum laude
Ada Florence Kneale
Katharine Rose Knisell
Loraine Lenz
*Rachel Lewis
*Helen Maurine Lundberg
Fred Augustus Luqueer
*Joseph Bernard McAndrew
cum laude
*Jean Evelyn McCormac
Catherine Esther McNulty
Hazel Irene MacDonald
Oscar Marinoff
Alice Herschel Martin
Roger Bernard Mead
magna cum laude
Louise Augusta Merrill
Doska Wilhelmina Elizabeth Monical
magna cum laude
Olive Elizabeth Morgan
Harold Thompson Morley
Bertha Freeman Mumma
Georgiebell Musser
*Philip D. Norvell
Edith Whitcher Noxon
Ruth Cymbeline Pehlstrom
*Vera Esther Pehlstrom
cum laude
John Charles Pile
*Hazel Mae Proffitt
cum laude
Julia Catherine Prouty
Artie Majors Pulliam
Mary B. Red
Homer James Reed
*Helen Mary Richardson
magna cum laude
Robert Mark Richardson, Jr.
*Anna Grace Riede
*Viola Marguerite Roberts
Alcyon Robinson
Margaret Edna Roulston
cum laude
William Joseph Ryan

* These candidates received also the Bachelor's Diploma in Education. Joseph Samuel Landers, A.B. 1917, also received the Bachelor's Diploma in Education.

† These candidates received also the Bachelor's Diploma in Commerce.

Homer Festus Sanger	Donald Welsh
*Rebekah Shattuck	†Frank Herschel West
William Robert Shaw	*Nellie Mirick West
Helen Slane	*Winifred Harris White
cum laude	cum laude
Fred B. Southwell	Claude Charles Wild
Mae Elizabeth Sutherland	George Findlay Willison
Onabelle Townsend	magna cum laude
*Genevieve Carolyn Trovillion	Gertrude Lucille Wright
Mary Ethyl Walter	magna cum laude
*Edith Martha Ware	†John Evan Miles Wright
*Helen Manker Webb	Helen Mary Yeaman

BACHELOR OF LAWS

Walter Edward Fisher	Jay Miller Rowland
Will Abbott Kelly	Burtis Britton Hunt Shattuck
James David Lewis	Henry Sterling Sherman
Edward Henry McBride	Stanley Thomas Wallbank
Harold David McKissack	Frederick David Zimmerman

DOCTOR OF MEDICINE

Morris Jacob Baskin	Ray Verne Proffitt
Leo Bertram Cohenour	Margaret Ann Hutchinson Sutley
James Roy Hurley	Dora von Holdt Walker
Morris Printz	Julius Aaron Wolf

DOCTOR OF OPHTHALMOLOGY

William Groce Harrison, B.Sc. 1890, Alabama Polytechnic Institute; M.D. 1892, University of Maryland.
 Harvey James Howard, A.B. 1904, University of Michigan; M.D. 1908, University of Pennsylvania; A.M. 1917, Harvard University.

MASTER OF ARTS

Jesse May Anderson, A.B. 1916, University of Colorado and Trinity University, Texas.
 Benjamin David Cornell, A.B. 1915, University of Colorado.
 Alvin Good, A.B. 1910, Kansas State Normal College.
 Joseph Samuel Landers, A.B. 1917, University of Colorado.
 Icie Gertrude Macy, A.B. 1914, Central College; B.S. 1916, University of Chicago.
 George J. Saunders, A.B. 1915, University of Colorado.
 Esther Smith, A.B. 1914, Doane College.
 George Peterkin Unseld, A.B. 1916, University of Colorado.

DEGREES CONFERRED, JUNE 25, 1919

GRADUATE IN NURSING

Nellie B. Abbett	Eva Bertha Hopfinger
Mary Susan Carter	Florence Guthrie McAnlis
Hallie Mae Detweiler	Lilla Richburg
Anna V. Heckman	Alna Williams

* These candidates received also the Bachelor's Diploma in Education. Joseph Samuel Landers, A.B. 1917, also received the Bachelor's Diploma in Education.

† These candidates received also the Bachelor's Diploma in Commerce.

GRADUATE IN PHARMACY

Hazel Dell Jaquiss
Helen May Myers
Faye Frances O'Brien

Walter Brown Stauffer
Margaret Catherine Swisher
Esther Lucile Weyand

BACHELOR OF SCIENCE (Ch.E.)

Carl Belser
*Ernest Glenn Campbell
Alvin John Holm
Wyllie Earl Lawrence
James Armour Lindsay

Will Wood Mellett
Henry Thomas Nock
Forest Wayne Sanders
Dean Thorpe Woodworth

With Honors

Eugene Victor Dobbins

Stuart Wilkins Pratt

With Special Honors

Erhard Albert Froese

Clarence Herbert Gillett

BACHELOR OF SCIENCE (M.E.)

Harold Charles Duggan

Wharton Kinsey Gray

With Honors

Claud Alven Vicklund

Enoch Rhinehart Vicklund

BACHELOR OF SCIENCE (E.E.)

*Jesse Raymond Brock
Roy August Hoffman
George Leslie Killian
*George Gustav Kretschmar
William Russell Lee

Robert Wendell Merritt
*Arthur William Nord
Murray Fontaine Skinner
*Terryl Clarence Smith

With Honors

Hilda Counts

Benjamin Uel Young

With Special Honors

Albert Severin Anderson

*Lester B. Johnson
Thomas Ignatius Matthews

BACHELOR OF SCIENCE (C.E.)

Harold Alfred Barr
Willis Chapel Barrett
Frank Herald Canis

Hugo Robert Lendecke
Juan Malixi
Edward William Oviatt

With Honors

King Burghardt
John Paul Elliott
Herman Marinus Eschenburg

Earl Leonard Harmon
Wendell Thomas Hedgcock

* By vote of the Board of Regents, September 4, 1919, diplomas as of June 25, 1919, were granted to these students who, because of the interruption of war service, completed the course during the Summer Quarter of 1919.

BACHELOR OF ARTS

Victor Kirk Adams
 Florence Marion Anderson
 *Dorothy Redell Blackburn
 *Ernestine Louise Block
 Dorothy Elizabeth Bonn
 Sara Elizabeth Branham
 Olive Rosamond Brown
 †John Francis Burke
 Kathleen Caufield
 *Annett Doris Claer
 *Fellicita Claer
 Marjorie Cleveland
 Regina Louise Cohn
 Jo Deck
 Louise-Josephine Dobbs
 Bessie Belle East
 Leslie Klepper Eastman
 Joseph Dewey Grigsby
 †Lothrop Carleton Hall
 John Harrington
 Mary Mostyn Hay
 Nellie Higgins
 *Faye Marie Hopkins
 Paul Huntzicker
 Katherine Jenkins
 Mabel Margaret Johnson
 Marie Keim
 Ruth Esther Kirkendall

Georgie Aloise Kistler
 Ruth Kistler
 Helen Kuver
 Leslie Middlekauff LeCron
 Helen Merrill
 *Vada Edith Mundell
 *Ella Marjorie Neill
 Edwin Fritz Patton
 Vincent Charles Perini, Jr.
 Nellie Sabena Powers
 *Irma Lenore Reed
 Marie Agnella Reilly
 Catherine Linnia Richards
 Amanda Rhoda Rohde
 *Lelia Mabel Rose
 Marguerite Elizabeth Sherman
 Irene Neill Sims
 William Walfred Swanson
 Mary Elizabeth Swofford
 Randolph Dyer Thomas
 Eva May Thomson
 Arla Evangeline Tuffy
 Chauncey H. Vivian
 Horace Palmer Wells
 Andrew Brunton Willison
 Kenneth Mack Willson
 Florence Helen Wittemyer

Cum Laude

Neil Hopper Borden
 Melvin James Collins
 *Nellie Creager
 Katherine Dorothy Fitzgerald
 Zoe Gore
 Lauren Chatfield Hand
 *Effie Pike Haring
 Helen Hunt Howard
 Thomas Keely, Jr.

*Vera Anna Olson
 *Amy Pitkin
 †Carlton Crew Robinson
 *Helen Rosenberg
 Edna Elizabeth Schiller
 Olive Margaret Simpson
 Harold Clark Thompson
 Richard Wilson Whitehead

Magna Cum Laude

Nellie Charline Cleveland
 *Mildred McMillen
 LeRoy Archibald MacColl

*Margaret Nelson
 Floyd Albert Spencer
 Leona Elizabeth Vincent

BACHELOR OF LAWS

Cecil Menefee Adams
 Benjamin Strauss Galland

John Francis Reynes
 Birger Tinglof

* These candidates received also the Bachelor's Diploma in Education.

Charlotte Frances Atwood, A.B. 1918, received also the Bachelor's Diploma in Education.

† These candidates received also the Bachelor's Diploma in Commerce.

DOCTOR OF MEDICINE

William Joseph Bowes
 Vernon C. Branham
 Edward Bradley Dewey
 Edwin G. Faber
 Herman Coddington Graves
 Robert Lee Guthrie
 Ethel Dare Humphrys
 George Sinclair Humphrys
 Maurice Katzman

Fayre Henry Kenagy
 Eli Abraham Miller
 Richard Craig Price
 Otto Louis Prien
 Roland Henry Prien
 Henry Squire Reid
 Willard Arthur Smith
 Edward Earl Taylor
 James Blaine Walton
 Samuel Weinfeld

DOCTOR OF OPHTHALMOLOGY

Billy Sylvester Guyton

B.S. 1910, A.M. 1911, University of Mississippi;
 M.D. 1913, University of Virginia.

MASTER OF SCIENCE

Quintin Randolph Dungan

B.S. (Ch.E.) 1916, University of Colorado.

Clarence Herbert Gillett

University of Colorado.

MASTER OF ARTS

Anna May Grant

A.B. 1902, University of Colorado.

Floyd Nelson House

A.B. 1918, University of Colorado.

Willie Irene Jenkins

A.B. 1911, University of Alabama.

Newton John Rice

A.B. 1908, Bellevue College.

Jennie Stark Rudolph

A.B. 1911, Westminster College.

Bryant Smith

A.B. 1913, Guilford College;

LL.B. 1916, University of Colorado.

Marjorie May Snyder

A.B. 1915, Colorado College.

MEDALS FOR DISTINGUISHED SERVICE

Charles Partridge Adams

Andrew Carlisle Carson

DOCTOR OF SCIENCE (honoris causa)

William Parker Headden

DOCTOR OF LAWS (honoris causa)

Livingston Farrand

CATALOGUE OF STUDENTS

GRADUATE SCHOOL

NAME	RESIDENCE
Abbott, Franz David, Litt.B.....	Erie, Pennsylvania
Grove City College, 1916.	
Chemistry, Mathematics.	
Abrahamson, Mary Louisa.....	Boulder
History	
Adams, Victor Kirk, A.B.....	Boulder
University of Colorado, 1919.	
Biochemistry.	
Alden, Ruth Viola, A.B.....	Wyoming, Iowa
Grinnell College, 1915.	
Mathematics, Physics.	
Anderson, Jesse May, A.B., A.M.....	Hubbard, Texas
Trinity University, 1916; University of Colorado, 1918.	
English Literature, Philosophy.	
Bates, Sister M. Basiline, A.B., A.M.....	Boulder
Mt. St. Joseph College, 1908; Catholic University of America, 1914.	
Philosophy, French, English.	
Baum, Eva Margaret, A.B.....	Salina, Kansas
University of Colorado, 1916.	
Chemistry, Determinative Mineralogy.	
Bell, Geneva M., A.B.....	Boulder
University of Colorado, 1911.	
Art.	
Burlingame, Charles Raymond, B.S (M.E.).....	Denver
University of Colorado, 1918.	
Mechanical Engineering, Electrical and Civil Engineering.	
Campbell, Robert James, A.B.....	Boulder
Northwestern University, 1902.	
English Literature, English Language.	
Canfield, Robert Hawthorne, B.S. (C.E.).....	Denver
University of Colorado, 1915.	
Carmichael, Emmett Bryan, A.B.....	Stratton
University of Colorado, 1918.	
Chemistry, Mathematics.	
Clarke, Francis Palmer.....	Denver
Philosophy, Sociology.	
Collins, Melvin James, A.B.....	Denver
University of Colorado, 1919.	
Geology, Mineralogy.	
Cook, Benjamin Franklin, B.S.....	Compton, Illinois
Beloit College, 1915.	
Copeland, George Holliday, A.B.....	Colorado Springs
Colorado College, 1914.	
Cornell, Benjamin David, A.B., A.M.....	Boulder
University of Colorado, 1915, 1918.	
Chemistry, Physics, Mathematics.	
Dummeier, Edwin F., A.B.....	Boulder
Louisiana State University, 1918.	
Du Vall, W. Clinton, B.S. (E.E.).....	Boulder
University of Colorado, 1912.	
Eads, Susan Alois, A.B.....	Tyndall, South Dakota
Morningside College, 1917.	
Fay, Marion Spencer, A.B.....	New Orleans, Louisiana
Tulane University, 1915.	
Chemistry.	

NAME	RESIDENCE
Ferguson, Alex McFarlane.....	Stranraer, Saskatchewan, Canada
English Literature, Education, English Language.	
Garbarino, Lucinda Marie, A.B., A.M.....	Boulder
University of Colorado, 1901, 1902.	
Romance Languages.	
Gruber, Charles, A.B.....	Fairfield, Pennsylvania
Pennsylvania College, 1915.	
Economics.	
Hall, Mary Stella, A.B., B.E.....	Boulder
University of Colorado, 1918.	
Education, English Literature.	
Hanson, Herbert C., A.B., A.M.....	Boulder
University of Minnesota, 1914; University of Nebraska, 1916.	
Botany, Chemistry.	
Hendrickson, Victor James.....	Denver
Geology, Paleontology.	
Hill, Alma Lucile, L.I., B.L., B.Ph.....	Memphis, Tennessee
Peabody Normal School, 1904; University of Nashville, 1905; University of Chicago, 1910.	
Howe, William Warren, A.B.....	Pueblo
University of Colorado, 1915.	
Organic Chemistry, Mathematics.	
Huntzicker, Paul, A.B.....	Boulder
University of Colorado, 1919.	
Hutchinson, Charles Angevine, A.B., A.M.....	Boulder
Wittenberg University, 1916, 1918.	
Mathematics, Physics, Astronomy.	
Johnson, Edna Louise, A.B.....	Brimfield, Illinois
University of Illinois, 1916.	
Botany, Entomology, Paleontology.	
Kerr, Mildred Nafe, A.B.....	Boulder
Upper Iowa University, 1913.	
Kretschmer, Otto Sheibel, A.B.....	Denver
Catholic University of America, 1913.	
Lewis, William Ray, A.B., A.M.....	Boulder
Friends University, 1910.	
American History.	
McClintock, Clyde Hirsch, B.S. (M.E.).....	Denver
University of Colorado, 1916.	
Mechanical Engineering.	
McGrath, Ellert Lewis, B.S.....	Berkeley, California
University of California, 1915.	
Education, Philosophy.	
Mallory, Walter Frank, B.S. (M.E.).....	Boulder
University of Colorado, 1914.	
Muse, Amy, A.B.....	Petersburg, Virginia
Trinity College, 1915.	
Perini, Vincent Charles, Jr., A.B.....	Denver
University of Colorado, 1919.	
Geology, Paleontology.	
Pickett, Harriet Lorine, B.Pd., B.S.....	Kansas City, Missouri
Warrensburg Normal School, 1916; Warrensburg College, 1918.	
Read, Norman, B.S. (E.E.).....	Denver
University of Colorado, 1905.	
Electrical Engineering.	
Reinertsen, Stephanis Gustavus, A.B.....	Alta, Iowa
St. Olaf College, 1911.	
Render, K. Merle, A.B.....	Hamilton, Missouri
Park College, 1915.	
Skinker, Murray Fontaine, B.S. (E.E.).....	Denver
University of Colorado, 1919.	
Electrical Engineering.	

NAME	RESIDENCE
Smith, Harry Denman, A.B.....	Enid, Oklahoma
University of Kansas, 1887.	
Thorpe, John George, B.S. (E.E.).....	Trinidad
University of Colorado, 1918.	
Electric Light and Power Plants.	
Underhill, Olive Lorena, Ph.B., A.M.....	Boulder
University of Chicago, 1909; University of Colorado, 1912.	
Van Valkenburgh, Horace Bulle, B.S., M.S.....	Boulder
University of Arkansas, 1905, 1912.	
Chemistry.	
Vincent, Leona Elizabeth, A.B.....	Victor
University of Colorado, 1919.	
Psychology, Philosophy, Education.	
Willett, Annie Laurie Turner, A.B.....	Boulder
University of Colorado, 1914.	
Psychology.	
Willson, Kenneth Mack, A.B.....	Boulder
University of Colorado, 1919.	
Geology, Mineralogy, Chemistry.	
Wilson, Matthew James, Jr., B.S.....	Boulder
Pennsylvania State College, 1918.	
Geology, Chemistry.	

SCHOOL OF MEDICINE

FOURTH YEAR CLASS

NAME	RESIDENCE
Aicorn, Floyd Arthur.....	Denver
Anderson, Cyrus Walfred.....	Denver
Bach, Walter Leo.....	Denver
Calhoun, Herbert Ong.....	Atlanta, Georgia
Cooper, Henry Lewis.....	Denver
Gasser, William Pope.....	Chicago, Illinois
Goldbloom, Isador, A.B.....	Denver
Gregg, Harold William.....	Longmont
Harner, Clyde Ernest.....	Duquesne, Pennsylvania
Heusinkveld, Gerrit.....	Denver
Johnson, Harry Arthur.....	Denver
Kretschmer, Otto Sheibel, A.B.....	Denver
Langdon, Erle Edward.....	Salida
McDonald, Roderick James, Jr.....	Leadville
Markel, Casper.....	Denver
Maul, Robert Franz, B.C.S.....	Denver
Prinzing, Joseph Fredric, B.S.....	Denver
Sears, Thaddeus Perce, A.B.....	Denver
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THIRD YEAR CLASS

NAME	RESIDENCE
Barnard, Isham Hamilton.....	Fowler
Bryson, Margaret Elizabeth.....	Houston, Texas
Dwyer, Paul Keefe.....	Creede
Goldfain, Ephraim.....	Denver
Harger, Chalmer Middlton.....	Denver
Hart, Verling Kersey, Jr.....	Boulder
Henderson, John Taylor.....	Boulder
Keim, Marie, A.B.....	Denver
Perkins, Earl James.....	Denver
del Rosario, José Maria.....	Denver
Rosenblum, Julius Lee.....	Denver
Sells, Virgil Emerald.....	Denver
Wear, Harry H.....	Meeker
Westinghouse, Clarence.....	Buffalo, New York
Whitehead, Richard Wilson, A.B.....	Breckenridge
—15	

SECOND YEAR CLASS

NAME	RESIDENCE
Adams, Victor Kirk.....	Boulder
Bauer, Harry Meier.....	Cleveland, Ohio
Brown, Lionel Botteman.....	Fairmont, Nebraska
Eastlake, Alfred Chesmore.....	Denver
Fenton, Ward Caldwell.....	Rocky Ford
Flower, Harry James.....	Boulder
Greene, Laurence Whilridge.....	Boulder
Gregory, Greenough.....	Westminister
Harvey, Edward Lee.....	Denver
Jaffa, Bertram Barr.....	Roswell, New Mexico
Keyes, Homer Richards.....	Denver
Mahoney, Louis Emmet.....	Boone, Iowa
Markey, Joseph James.....	Denver
Miller, Howard Stephens.....	Denver

NAME	RESIDENCE
Nairn, George Waverly.....	Boulder
Prey, DuVal	Denver
Scott, John Terrell.....	Lynchburg, Virginia
Smith, Edmund Geoffrey.....	Denver
Williams, Isabella Milling.....	Jacksonville, Florida
Yegge, William Bernard.....	Denver

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FIRST YEAR CLASS

NAME	RESIDENCE
Bolles, Esther Janet.....	Denver
Burlingame, Robert Miles.....	Denver
Chambers, Katharine Lee.....	Boulder
Coakley, Harry Elmer.....	Denver
Danielson, Ralph Wesley.....	Boulder
Dumm, Byron Innis.....	Casper, Wyoming
Estrin, Morris Moses.....	Denver
Ham, Della Pauline.....	McClave
Hepplewhite, James Gladstone.....	Canon City
Laff, Herman Isaac.....	Denver
Metz, Roy DeVaughan.....	Wallace, West Virginia
Miller, Arthur Henry.....	Boulder
Nelson, Eli	Denver
Nelson, Sam	Denver
Rothwell, William David.....	Boulder
Viecelli, James Dominic.....	Sopris
Yaker, David N.....	Denver
Zarit, John Isadore.....	Denver

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SPECIAL STUDENTS

NAME	RESIDENCE
Cook, Benjamin Franklin.....	Compton, Illinois
DeBolt, Grover Cleveland.....	Denver
Gruber, Charles Merl.....	Boulder
Kingery, Jessie Roberson.....	Boulder
Lannon, Arthur Ray.....	Denver

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SCHOOL OF LAW

THIRD YEAR CLASS

NAME	RESIDENCE
Adams, Charles Chenault.....	Boulder
Adams, Wilbur Wolf, A.B.....	Boulder
Barnard, John Bell.....	Boulder
Brinkley, George Earl, A.B.....	Boulder
Burke, Thomas George, A.B.....	Boulder
Deatherage, James Parker.....	Paonia
Helman, John Phillip.....	Boulder
Higgins, Thomas Edward, A.B.....	Silverton
Kochevar, Matthew John.....	Crested Butte
McCann, John Augustine, A.B.....	Passaic, New Jersey
Morente, José.....	Mindoro, Philippines
Myer, Erskine Reed, A.B.....	Boulder
Sanborn, Frederick William, Jr., A.B.....	Denver
Shaw, William Robert, A.B.....	Aspen
Sullivan, Mortimer Francis.....	Denver
Wallace, Blaine Bee.....	Denver

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SECOND YEAR CLASS

NAME	RESIDENCE
Burton, William Talmage.....	Burnsville, North Carolina
Carroll, James Vincent.....	Iowa City, Iowa
Chapman, Elbridge Gerry, Jr., A.B.....	Denver
Chapman, Ralph.....	Boulder
Douglass, Curran Fletcher.....	Malta Bend, Missouri
Downing, Richard Edmund.....	Denver
Grutter, Walter Luke, A.B.....	Boulder
Hanning, Wallace Totten.....	Denver
Hinkley, Henry Lawrence.....	Sterling
Hurlburt, Helen Alverda.....	Fruita
Isbill, Albert Sydney, A.B.....	McGregor, Texas
Kellogg, Lincoln Lewis.....	Oneonta, New York
Nichols, Alan.....	Boulder
Shaw, Earle Lionel.....	Denver
Sibbald, Reginald Spaulding.....	Boulder
Smith, Feay Burton.....	Montrose
Stone, Clifford Hannibal, A.B.....	Gunnison
Stratton, Marjorie Allen.....	Boulder
Thompson, Glenn Stryker.....	Charlotte, Michigan
Thompson, Harold Clark, A.B.....	Greeley
Warrington, Jesse Gilbert, A.B.....	Boulder

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FIRST YEAR CLASS

NAME	RESIDENCE
Adams, Jane.....	Boulder
Beverly, James.....	Windton
Coonratt, Arthur Vivian.....	Boulder
Craven, Edward Bernard.....	Williston, North Dakota
Dickason, Deane Henry.....	Denver
Elam, Roy J.....	Enid, Oklahoma
Eynon, Clarence.....	Durango
Fischer, John Carlton.....	Richmond, Virginia
Flynn, Edward James.....	Jamaica Plains, Massachusetts

NAME	RESIDENCE
Fraser, William George.....	Denver
Fulghum, Carl Whitney.....	Glenwood Springs
Glover, Olive Earl.....	Boulder
Griffith, John Lindsey.....	Boulder
Guinn, Ferdie D.....	Ada, Oklahoma
Hanks, Bryan Cayce.....	Wichita Falls, Texas
Hedrick, Roland Leslie.....	Craig
Hiler, Ivan Laurence.....	Glenns Ferry, Idaho
Hoffman, James Robert.....	Littleton
Holmes, Charles Martin.....	DeBeque
Jerman, Stanley Andrew.....	Denver
Kilkenny, Austin Edwin.....	Leadville
Longshore, William Breck.....	Bucknum, Wyoming
McHatton, Stanley.....	Gypsum
Moore, John Randle.....	Campbell, Missouri
Murphy, Clarence Elmer.....	Mentor, Ohio
Naylor, Herbert Charles.....	Denver
Nicholas, Howard Lloyd.....	Boulder
Penney, Benjamin George.....	Pueblo
Reynolds, James Price.....	Cokeville, Wyoming
Rush, William Schafter.....	Salida
Schaper, Robert Henry.....	Havelock, Nebraska
Schidegger, Lloyd Wesley.....	Fort Morgan
Seavy, Vasco Gerald.....	New Raymer
Shay, William James.....	Denver
Sullivan, Robert Francis.....	Chicopee Falls, Massachusetts
Sweet, Irena Elladee.....	Victor
Tarkoff, Harry.....	Boulder
Toelle, Wallace Walter.....	Bloomington, Indiana
Wagner, John Albert.....	West Bend, Wisconsin
Williams, Harley J.....	Golden
Wilson, John Donald.....	Albuquerque, New Mexico
Wood, Edward Langstrath.....	Denver

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SPECIAL STUDENTS

NAME	RESIDENCE
Beer, Dee Howard.....	Boulder
Bennett, Raybern Shad.....	Benton, Illinois
Branine, Alden.....	Newton, Kansas
Devries, Herbert J. S.....	Fremont, Nebraska
Duce, Harold Taylor.....	Boulder
Foster, Embree Hiller.....	Boulder
Hogan, Thomas Patrick.....	Gunnison
Jones, William Martin.....	Arvada
Latorra, Dominic.....	Boulder
Lussier, Albert Joseph.....	Boulder
Manion, Rose.....	Madison, Wisconsin
O'Day, George William.....	Lafayette
Shobert, Warren LaMotte.....	Bloomsburg, Pennsylvania
Skouland, Howard Frederick.....	Denver

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COLLEGE OF LIBERAL ARTS

SENIOR CLASS

NAME	RESIDENCE
Abrahamson, Mary Louisa.....	Boulder
Ackerman, Lloyd	Boulder
Atkins, Verdon Elmer.....	Longmont
Bailey, Blanche Grace.....	Boulder
Bair, Dorothy Helen.....	Denver
Baxter, Gladys Elizabeth.....	Rocky Ford
Beacom, Dean Nolon.....	La Harpe, Illinois
Bell, Hazel Eulalia.....	Silverton
Bimson, Edith Ellen.....	Berthoud
Birdick, Arthur Almon.....	Boulder
Birnbaum, Harold Fischlowitz.....	Denver
Bohn, Margaret May.....	Longmont
Breckenridge, Robert Glenn, Jr.....	Pueblo
Bryant, Carl	Pueblo
Campbell, Pearl	Loveland
Carley, Meda Fayth.....	Cheyenne, Wyoming
Christopher, Beulah	Wellington
Clarke, Francis Palmer.....	Denver
Colestock, Trilby Ruth.....	Hecla, South Dakota
Crouch, Marjorie Schoppe.....	Fort Morgan
Curry, Margaret Eleanor.....	Boulder
Dale, Marion B.....	Denver
Danielson, Ralph Wesley.....	Boulder
Denslow, Rachel Irene.....	Denver
Donehue, Frances Selina.....	Denver
Downs, Doris	Boulder
Drach, Gertrude Magdalene.....	Denver
Eddy, Priscilla Henrietta.....	Boulder
Ferguson, Alex McFarlane.....	Stranraer, Saskatchewan, Canada
Fleming, Nancy Amelia.....	Boulder
Geltz, Helen Wann.....	Boulder
Ginther, Sarah Beverly.....	Boulder
Griffith, Helen Jessie.....	Denver
Harvey, Effie Marie.....	Boulder
Hawkyard, Stella Grace.....	Olathe
Hinkley, Henry Lawrence.....	Sterling
Holcomb, Janet Lillian.....	Boulder
Hummel, Elizabeth Sophia.....	Boulder
Husted, Helen May.....	Denver
Johnson, Faith Winifred.....	Orange, California
Johnston, Ruth Mary.....	Idaho Springs
Kappler, Edwin	Denver
Kiker, Sada	Boulder
Kreps, Theodore John.....	Boulder
Lyster, Elsie Muriel.....	Greeley
McCormac, Alice Irene.....	Boulder
Macgregor, Maud Vanda.....	Golden
Martin, Herbert.....	Monte Vista
Mason, Marian	Boulder
Merryfield, Mabel Pearl.....	Boulder
Meyer, Freda Emma.....	Olathe
Mills, Glen Everett.....	Boulder
Mulvihill, Harry Marcus.....	Denver
Nairn, George Waverly.....	Boulder
Nelson, George Richard.....	Denver
O'Malia, Regina Catherine.....	Boulder
Penney, George Benjamin.....	Pueblo

NAME	RESIDENCE
Peyton, Marguerite Shirley.....	Boulder
Pittman, Jo	Boulder
Powars, Frank Gordon	Brighton
Prey, DuVal	Denver
Roberts, Doris	Denver
Royce, Lourie Merle.....	Boulder
Sandhouse, Grace Adelbert.....	Boulder
Saunders, Ray Walter.....	Boulder
Selvy, Laura Etta.....	Clayton, New Mexico
Shaw, Harriet Bliss.....	Cripple Creek
Skiff, Marjorie	Boulder
Slane, Ruth	Saguache
Sloan, Helen Roberta.....	Durango
Smercheck, Bernice Grace.....	Boulder
Snider, James Birch.....	Denver
Solt, Helen	Denver
Tarkoff, Irma	Boulder
Thompson, Elizabeth Alice.....	Holyoke
Tippett, Donald Harvey.....	Boulder
Traxler, Ralph Newton.....	Lamar
Urdike, Mary Ella.....	Trenton, New Jersey
Vandenburg, Millie Bird.....	Cimarron
Vowell, Catharine Elizabeth.....	Littleton
Watt, Marian Virginia.....	Denver
White, Vivian.....	Kansas City, Missouri
Wiggins, Loretta	Canyon, Texas
Wolf, Clayton.....	Fort Collins
Wright, Agnes	Boulder
Young, Isabel Scott.....	Walsenburg

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JUNIOR CLASS

NAME	RESIDENCE
Abbott, Henry Brown.....	Brighton
Adams, Frank Charles.....	Denver
Akers, Byron Lionel.....	Denver
Alenius, Alfhild Margaret.....	Denver
Anderson, Eugene Newton.....	Boulder
Anderson, Hazel Beatrice.....	Pueblo
Andrews, Everett Philip.....	Boulder
Ashley, Schuyler.....	Kansas City, Missouri
Bare, Orlena	Denver
Barrett, Josephine Rose.....	Boulder
Bean, Helen DeKalb.....	Boulder
Becker, Elery Ronald.....	Rocky Ford
Becker, Frederick Edward.....	Fort Morgan
Bedford, Elizabeth Gist.....	Oklahoma City, Oklahoma
Bennett, Rama Virginia.....	Boulder
Benson, Lillian Elvira.....	Boulder
Bitner, Katharine Harriett.....	Boulder
Bowler, Mary Angela.....	Denver
Bragdon, Warren Brooks.....	Colorado Springs
Breyfogle, Amy Louise.....	Boulder
Breyfogle, Eva May.....	Boulder
Brubaker, Genevieve Bernice.....	Boulder
Buchheim, Walter August.....	Leonardville, Kansas
Bunyan, Mary Frances.....	Berthoud
Burke, Mary Louise.....	St. Elyria, Ohio
Burke, Robert Emmet.....	Boulder
Burrows, Alice	Denver
Bushey, Ray Allen.....	Manzanola
Chang, Doo	Shanghai, China
Chapman, Sara.....	Monte Vista
Cheedle, Roxana LaVerne.....	Grand Junction

NAME	RESIDENCE
Clark, Andrew Giles.....	Boulder
Coates, Lola Elizabeth.....	Lamar
Cobbey, Lillian West.....	Denver
Coghlan, Anne Theoline.....	Boulder
Cole, Rilla Carol.....	Denver
Collins, Norma Dorothy.....	Gunnison
Cornwall, Ruth.....	Spencer, Iowa
Costello, George Francis.....	Denver
Craig, Elberta Louise.....	Boulder
Curtis, Gwendolyn Ann.....	Castle Rock
Daily, Francis Elizabeth.....	Beloit, Kansas
Dildine, William Edwin.....	Freeport, Illinois
Donaldson, Frances.....	Fort Washakie, Wyoming
Duce, Katharine Frances.....	Boulder
Duggan, Helen Gordon.....	Denver
Durward, Robert Harland.....	Boulder
Ebert, Alice Ladd.....	Boulder
Edgar, Marjorie.....	Weatherford, Texas
Elias, Richard Ralph.....	Boulder
Ellett, Alexander.....	Browning, Missouri
Emery, Rebecca.....	Longmont
Fees, Hazel Adeline.....	Boulder
Ferris, Willa Ferne.....	Denver
Fleming, Helen Margarie.....	Denver
Foster, Lois May.....	Longmont
Franklin, Walter Byron.....	Fort Collins
Gahagen, Agnes.....	Denver
* Geltz, Herbert Spencer.....	Boulder
Goebel, William Rudolph.....	Tyrone, New Mexico
Gorce, Lila May.....	Boulder
Goudie, Jessie Mae.....	Denver
Graham, Sarah Marie.....	Oberlin, Ohio
Gruver, Margaret Ella.....	Monte Vista
Gunderson, Martha Charlotte.....	Rolfe, Iowa
Handy, Eleanor Dora.....	Boulder
Hardy, Mary Madeline.....	Denver
Harger, George Ralph.....	Denver
Hauck, Evangeline S.....	Rocky Ford
Henderson, Martha.....	Fort Collins
Hendrickson, Victor James.....	Denver
Hodge, Fleeta Clarissa.....	Boulder
Hodge, Inez Fae.....	Boulder
Hopkin, Eunice Maxwell.....	Denver
Howell, Homer Roberts.....	Trinidad
Huff, Marian Moorhouse.....	Detroit, Michigan
Hughes, Sarah Ellen.....	Boulder
Jennings, Howard Wight.....	Moberly, Missouri
Johnson, Ruth Ann.....	Mangum, Oklahoma
Johnson, Vernice.....	Boulder
Jones, Margaret Ruth.....	Littleton
Jones, Vera Heinly.....	Boulder
Killgore, Anthony Jay.....	Denver
Kinmouth, Darlene Pearl.....	Russell, Iowa
Knowles, Samuel Etnyre.....	Boulder
Knowlton, Donald Ryder.....	White Rock
Knox, Margaret Matilda.....	Denver
Langley, Luverne Gove.....	Denver
Latthrop, Lucile.....	Omaha, Nebraska
Lavington, Charles Stephen.....	Flagler
LeMay, Vera.....	Concrete
Lester, Katherine Wheeler.....	Boulder
Lilly, Evelyn Idonia.....	Cripple Creek
Lind, Rose Matilda.....	Boulder

* Died February 22, 1920.

NAME	RESIDENCE
Lindberg, Eugene Theodore.....	Pueblo
Lovelace, Stuart Harris.....	Denver
McInnes, Donald.....	Boulder
McNeece, Ann A.....	Leadville
MacArthur, Emma-Glen.....	Monte Vista
Maier, Frank Julian.....	Boulder
Maxwell, Uecil Seymour.....	Denver
Mellow, Ruth Ethel.....	Denver
Mentgen, Frances Marguerite.....	Sterling
Merrill, Richard Lee.....	Lamar
Michael, Maude Alice.....	Denver
Morning, Elizabeth.....	Denver
Murphy, Russell John.....	Denver
Myers, John Clark.....	Greeley
Nimmo, Mary Ellen.....	Cheyenne, Wyoming
Noxon, Frances Clare.....	Boulder
O'Dea, Helen Louise.....	Leadville
Parsell, Bertha May.....	Canadian, Texas
Price, Cecil Bradford.....	Denver
Purcell, Margaret Mary.....	Grand Junction
Putcamp, Anna Elizabeth.....	Denver
Reynolds, Eleanor Ruth.....	La Junta
Reynolds, Henry Etta.....	Boulder
Richardson, Charleen Dale.....	Denver
Ridgeway, Arthur.....	Boulder
Rose, Clarence William.....	Boulder
Scheidegger, Elvin Franklin.....	Fort Morgan
Sherrill, Lena Patricia.....	Denver
Shoaf, Dorothy Noyes.....	Taylor, Texas
Short, Edna Louise.....	Denver
Simpson, Frances.....	Fowler
Simpson, Martha Louise.....	Vincennes, Indiana
Smercheck, Lillian Dorothy.....	Boulder
Smith, Irving Stanton.....	Pueblo
Smith, Margaret Virginia.....	Grand Junction
Sowter, Grace.....	Great Falls, Montana
Spencer, Pearl Conger.....	Boulder
Strange, Helen Amelia.....	Steamboat Springs
Stratton, Rosemary.....	Boulder
Swanson, Arveda Katharine.....	Georgetown
Swayne, Ida Loyd.....	Boulder
Taylor, Overton Hume.....	Boulder
Thorpe, Violet Eva.....	Boulder
Tipton, Elsie Leone.....	Tabor, Iowa
Trolinger, Lelia Gertrude.....	Clinton, Missouri
Vagnino, Louis S.....	Denver
Van Duzee, Edward Heath.....	Boulder
Van Duzee, Mabel V.....	Boulder
Van Noy, Doris Kathleen.....	Pueblo
Vawter, Viola.....	Fowler
Walker, Mary Eugenia.....	Denver
Walsh, Walter Michael.....	Denver
Wellman, Harry Otis.....	Mangum, Oklahoma
White, James Herschel.....	Boulder
White, Lowell O.....	Denver
White, Roscoe Hubert.....	Stockdale, Texas
Whitney, Caroline Elizabeth.....	Boulder
Wilkin, Frank Josef.....	Denver
Williams, Beatrice Emily.....	Denver
Wittemyer, John.....	Boulder
Wolf, Lyle Havener.....	Fort Collins
Wolf, Thomas O.....	Boulder
Woods, Gladys Margaret.....	Pueblo

NAME	RESIDENCE
Wray, Ralph Merritt.....	Olathe
Young, Mildred Arline.....	Boulder
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SOPHOMORE CLASS

NAME	RESIDENCE
Ahlberg, Ruth	Odebolt, Iowa
Ahlin, Margaret	Greeley
Aitken, Douglas Carryl.....	Aurora
Alexander, Clark Taylor.....	Flagler
Allison, Charles Klersey.....	Colorado Springs
Anderson, Georgia Christine.....	Denver
Ball, Reuben Creswell	Meeker
Bardwell, Eva Gertrude.....	Denver
Barney, Horace Justin.....	Manzanola
Barnhart, Lucy Persis	Denver
Bates, Irene Templeton	Basalt
Baxter, Julia Eileen.....	Longmont
Bean, Hildred Elizabeth.....	Boulder
Beatty, Helen Hagerman.....	Denver
Beck, Teresa Fredrica.....	Pueblo
Bell, Rodney Stanford.....	Glenwood Springs
Bickley, Frances Alice.....	Raton, New Mexico
Bishop, Frank Dewey.....	Denver
Blackburn, Lois Delight	Boulder
Blade, Frank Joseph.....	Boulder
Blair, Harrison D.....	Sterling
Blosser, Edith Bell.....	Boulder
Blosser, Iva Caroline.....	Boulder
Boaz, Louise McLain.....	Denver
Bohn, Doris Lucile	Longmont
Borland, Harold G.....	Flagler
Bragdon, Sarah	Pueblo
Brazil, Mary Lenore Evelyn.....	Alamosa
Breitenstein, Jean Sala.....	Boulder
Brock, Bessie May.....	Buffalo, Wyoming
Brown, Bertha	Denver
Bruce, Caroline Ann.....	Montrose
Brunner, Clara Una.....	Boulder
Buie, Edythe Ben.....	Boulder
Burch, Neal	Hayden
Button, Doris Edwina.....	Denver
Carmody, Ruth	Denver
Carpenter, Mary Helen.....	Pueblo
Caufield, Lillian	Boulder
Cawood, Verne Carroll.....	Boulder
Chamberlain, Louis Francis.....	Fort Collins
Chandler, Marie Elizabeth.....	Stratton
Chenault, Helen Virginia.....	Denver
Chernyk, Maurice	Denver
Christensen, Bryant Elliot.....	Boulder
Cinnamon, Elsie	Boulder
Cochrane, Eunice Gaines.....	Aurora
Cole, Julia Moore.....	Denver
Collins, Lucile Esther.....	Boulder
Consley, Inez	Grand Junction
Coombs, Viola Frances.....	Boulder
Corliss, Grace Luella.....	St. James, Minnesota
Cowan, Lucile Harriett.....	Denver
Cowdery, Ruth	Denver
Crawford, Gladys Ida.....	Grand Junction
Cush, Anthony John.....	Pueblo
Daily, Ruth Bridgid.....	Beloit, Kansas

NAME	RESIDENCE
Dake, Ruth Norma.....	Pine
Darling, Herrick Hiram.....	Fort Collins
Davenport, Eleanore L.....	Ottawa, Kansas
Davies, Ruth	Deer Trail
Davis, Florence Mary.....	Durango
Deidesheimer, Marguerite	Denver
De Motte, Oliver	Boulder
Dimm, Florence Louise.....	Denver
Dobbs, Hugh Justin, Jr.....	Beatrice, Nebraska
Doherty, Muryl Marvin.....	Boulder
Dole, Mary Ellen.....	Boulder
Douglas, Frederic Huntington.....	Evergreen
Doyle, Francis Ivah.....	Denver
Drach, Mildred Agnes.....	Denver
Duke, Jean	Hotchkiss
Dunn, Hobart Reimer.....	Milliken
Eagleton, Emerson M.....	Boulder
Eberenz, Jessie Brown.....	Pueblo
Eckels, Margaret	Boulder
Elwood, Rex B.....	Omaha, Nebraska
Emery, Dorothea Francis.....	Colorado Springs
Endicott, Alice	Canon City
Evans, Catharine Bothwell.....	Chillicothe, Ohio
Fahnestock, Sarah	Boulder
Field, John Thomas.....	Denver
Foster, John McEwen, Jr.....	Denver
Fredericks, Gladys Leahola.....	Nucla
Freedheim, Eugene Heittler.....	Denver
Freedle, Lucien	Saguache
Freeman, Rosalie Belle.....	Mancos
Fuller, Norman Graham.....	Loveland
Fulscher, Clara Anne.....	Holyoke
Fulscher, Hertha Adele.....	Holyoke
Gapen, Laura Villa.....	Palisade, Nebraska
Gertsen, Elizabeth	Boulder
Gibson, Clara Josephine.....	El Paso, Texas
Giffin, Luman Cushman.....	Boulder
Gildersleeve, Dorothy Clarke.....	Denver
Gillett, Ivan Parkin.....	Boulder
Green, Dorothy	Crowley
Green, Louis	Denver
Griffith, James Eidson.....	Boulder
Griggs, Earl Leslie.....	Croton-on-Hudson, New York
Haeseler, Dorothy Maree.....	Boulder
Hair, James William.....	Denver
Hall, Ellis Azelle.....	Boulder
Hall, Marguerite	Boulder
Hammond, Fred Charles.....	Glenwood Springs
Hansen, Floyd Anton.....	Boulder
Harmon, Julia Lettisa.....	Lafayette
Hart, Edward Baldwin.....	Denver
Hart, Howard Webster.....	Denver
Hartwell, Dorothy Frances.....	Haxtun
Hayes, Helen	Boulder
Hellstern, Edna Isabelle.....	Pueblo
Hill, Mathilda Barton.....	Boulder
Hopkins, Hugh John.....	Denver
Hufsmith, Ava Amalia.....	Casper, Wyoming
Hunley, Dorothy Jane.....	Garnett, Kansas
Hunsicker, Margaret B.....	Eckert
Hunsicker, Ruth B.....	Eckert
Hurst, H. Euvera.....	Montrose
Hyde, Mildred Ruth.....	Denver
Ingalls, Martha Elizabeth.....	Hygiene
James, Edilya	Denver

NAME	RESIDENCE
Johnson, Elsa Marie.....	Boulder
Johnson, Mildred Nelle.....	Roggen
Johnson, Ruby Beatrice.....	Boulder
Jones, Dorothy May.....	Littleton
Jones, Natalie	Austin, Texas
Jones, Tulip Anne.....	Trenton, Missouri
Keen, Victor	Pueblo
Kemmy, Marion Margaret.....	Boulder
Kenagy, Louise Elizabeth.....	Rupert, Idaho
Kendall, Genevieve Agnes.....	Pueblo
King, Florence June.....	Denver
King, Nellie Paxton.....	Denver
Kistler, Hattie Ethel.....	Longmont
Kistler, Ruth Irene.....	Denver
Kneale, William Christian.....	Boulder
Kolb, Julius Howard.....	Denver
Kopp, Benjamin	Boulder
LaGrange, Mark Dean.....	Meeker
Lail, Lois	Denver
Larsen, Russell Conwell.....	Trinidad
Laub, Dorothy Connor.....	Boulder
Lawler, Hazel Irene.....	Fowler
Lee, Samuel Morris.....	Fort Morgan
LeFevre, Harry Wilson, Jr.....	Denver
Leonhardy, Adela Viola.....	Fruita
Liebhardt, Georgia	Denver
Lillibridge, Ella Rosalie.....	Burke, South Dakota
Lindsey, Maude Louise.....	Boulder
Livingston, Mary	Windsor, Missouri
Long, Margaret Alberta.....	Arena
Lorber, Milton Bryan.....	Denver
Loser, Julia Elizabeth.....	Denver
Lovejoy, Elijah Parish.....	Rocky Ford
Lund, Eva Catherine.....	Salt Lake City, Utah
McEwan, Theodore R.....	Holyoke
McGrew, Ava Jean.....	Fort Morgan
McLaughlin, Margaret Caroline.....	Boulder
McLean, Beryl May.....	Lamar
McLean, Gladys Euphemia.....	Lamar
McNerney, William Eugene.....	Goldfield
Macfarlane, Anna May.....	Coalmont
Malm, John Chester.....	Denver
Martinez, Joseph Eliseo.....	Trinidad
Mason, Mary Eleanor.....	Denver
Mauntel, Grace Elizabeth.....	Alva, Oklahoma
Meeken, Duard Orvan.....	Brighton
Mertens, Barbara Cecilia.....	Boulder
Miller, Israel	Denver
Miller, Mildred Elizabeth.....	Boulder
Mitchell, John Charles.....	Boulder
Moncrieff, James Elwood.....	Boulder
Mussey, William Osgood, Jr.....	Denver
Nafziger, Raymond E.....	Fairburg, Nebraska
Neeley, William B., Jr.....	Longmont
Ness, Ragnar John.....	Denver
Newcomb, Mary Frances.....	Colorado Springs
Nicholson, Coralie Rozelle.....	Boulder
Nicholson, Mary Belle.....	Boulder
Noggle, Alva Robinson.....	Fort Morgan
Noland, James Matthews.....	Denver
Nordstrom, Ida	Grand Valley
Norris, Maude Eudora.....	Cripple Creek
Noxon, Florence Kelso.....	Boulder
Ozanne, Henry Joseph.....	Denver
Palmer, Vera	Boulder

NAME	RESIDENCE
Park, Hazel Anna.....	Kutch
Partridge, Elizabeth Wallace.....	Holly
Patton, Lucia Cassell.....	Denver
Patton, Marshall Davis.....	Boulder
Perry, Francis Benjamin.....	Brighton
Petersen, Elsie Rebecca.....	Lander, Wyoming
Pitts, Inez Magnolia.....	Denver
Pope, Maxy Alice.....	Canon City
Port, Dorothy Winifred.....	Palisade
Potter, Dorothy.....	Boulder
Price, Mary Ellen.....	Cripple Creek
Pyle, Clark W.....	Boulder
Rait, Mary.....	Palisade
Ramsdell, James Williams.....	Lakewood, New Jersey
Randall, Marion.....	Rocky Ford
Reading, Katherine Helen.....	El Paso, Texas
Reardon, Raymond Francis.....	Denver
Reed, Mabel Alice.....	Wray
Reid, Bessie Virginia.....	Windsor
Reiter, Perry R.....	Boulder
Reuter, Henrietta May.....	Aspen
Richards, Mary Elizabeth.....	Hannibal, Missouri
Rickelton, Howard Anderson.....	Olathe
Ridgeway, Leora B.....	Boulder
Robinson, Clarence William.....	San Acacio
Rutherford, Jane.....	Sheldon, North Dakota
Sanborn, Louise Caroline.....	Denver
Sappenfield, Franklin Oscar.....	Boulder
Savage, Raymond James.....	Denver
Sayer, Parke J.....	Holly
Scheck, Mary Augusta.....	Olathe
Schweppe, Florence Lois.....	Boulder
Sears, Thomas David.....	Loveland
Sethman, Harvey Thurston.....	Denver
Shelton, Dorothy Dinsdale.....	Denver
Sherman, George Raymond.....	Boulder
Sherman, Nancy Louise.....	Denver
Shimeall, Robert Cecil.....	Goodland, Kansas
Siggins, Ernest Lelland, Jr.....	Denver
Sims, Marian Thompson.....	Monte Vista
Smith, Gertrude Marie.....	Red Oak, Iowa
Snider, Helen.....	Denver
Spackman, Ellis Leeds, Jr.....	Colorado Springs
Specking, Inez.....	Boulder
Spencer, Richard Carleton.....	Boulder
Squier, Raymond Roscoe.....	Denver
Squire, Fay Huffman.....	Aberdeen, South Dakota
Starr, Lucille.....	Fowler
Stauffer, Donald Alfred.....	Denver
Stebbins, Norma.....	Palisade
Stewart, Dorcus.....	Loveland
Stewart, Magnus Jackson.....	Loveland
Stote, Helen Marshall.....	Colorado Springs
Stowell, Geraldine.....	Longmont
Strange, John Kreuger.....	Steamboat Springs
Stubbs, Lucile.....	Fowler
Talbert, Dorothea Elliott.....	Denver
Talbert, Helen C.....	Boulder
Thomas, E. Viola.....	Denver
Thompson, Eldridge Cummings.....	Las Animas
Thompson, Frances Lois.....	Holyoke
Thompson, Lester Emmit.....	Hugo
Thompson, Warren Osborne.....	Boulder
Tisdell, Bertram Boyd.....	Greeley
Toerge, Dorothea Miriam.....	Colorado Springs

NAME	RESIDENCE
Troutman, John Franklin.....	Boulder
Turney, Alice Elizabeth.....	Loveland
Twombly, Lena Marie.....	Fort Lupton
VanDeventer, Albert Gale.....	Loveland
Wagner, Henry Joseph.....	Boulder
Wahlberg, Edgar Malcolm.....	Denver
Walbridge, Clarence Friedrich.....	Durango
Wallace, Wilda Gertrude.....	Grand Junction
Ward, Thomas.....	Denver
Wellman, Augusta Lee.....	Mangum, Oklahoma
White, Philip Weaver.....	Denver
Williams, Addison LeClerque.....	Denver
Williams, Allen Magee.....	Boulder
Williams, Alta.....	Boulder
Williams, Embry Lloyd.....	Boulder
Williams, Ethel Elizabeth.....	Ucross, Wyoming
Williams, James Reid.....	Yampa, Wyoming
Williams, Jennie Winona.....	Ucross, Wyoming
Williams, Kendall.....	Owensboro, Kentucky
Wilson, Carroll Eldred.....	Milliken
Wolfe, Josephine Loring.....	Placerville
Wood, Inez.....	Boulder
Wood, Irene.....	Boulder
Wooding, Virginia Margaret.....	Mont Clair, New Jersey
Zingg, Robert Mowry.....	Holyoke
Zook, Marvel Mae.....	Erie

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FRESHMAN CLASS

NAME	RESIDENCE
Adams, Amy.....	Montrose
Adams, Lillian Mae.....	Boulder
Adams, Pamela Anne.....	Boulder
Adams, Phelps Haviland.....	Denver
Aikin, Lawrence Merton.....	Loveland
Aitken, Malcolm Darroch.....	Mt. Hamilton, California
Allen, Cloye.....	Salida
Alpert, Herbert Arthur.....	Fort Collins
Anderson, George Robert.....	Walsenburg
Anderson, Newell Curran.....	Denver
Anderson, Roscoe Herman.....	Boulder
Andrew, Charles Donald.....	Longmont
Andrew, Thomas William.....	Pueblo
Andrew, Warren Melvin.....	Boulder
Archibald, Howard G.....	Pocatello, Idaho
Ardourel, Aline Elizabeth.....	Boulder
Armstrong, Minnie Ella.....	Boulder
Arnold, Henry Avery.....	Denver
Ashley, Henrietta.....	Canon City
Ashley, John Herbert.....	Ouray
Atwood, Esther.....	Boulder
Avington, Eynon Timothy.....	Denver
Bailey, Virginia Mary.....	Denver
Baird, William Samuel, Jr.....	Council Bluffs, Iowa
Baker, Mary Elizabeth.....	Pueblo
Baker, Robert Gutelius.....	Denver
Bancroft, Catharine Virginia.....	Brighton
Bardwell, Rodney Jewett, Jr.....	Denver
Barker, James Ellsworth.....	Burlington
Barkley, Dorothea Gladys.....	Denver
Barnett, Louis P.....	Columbia, Missouri
Barrick, Jessie Erma.....	Idaho Springs
Barry, Helen Eleanor.....	Boulder
Bartlett, Nona.....	Denver

NAME	RESIDENCE
Bartley, Launcelot Thomas.....	Pueblo
Bathrick, Frances Slade.....	Cleveland, Ohio
Beckwith, Bernice Roberta.....	Boulder
Bein, Laurel Mary.....	Berthoud
Bell, Dorothy	Boulder
Bell, John Laurence.....	Montrose
Bell, Katharine.....	Marshall, Missouri
Bellinger, Clarence Calvin.....	Ouray
Bennett, Etta Lucile.....	Delta
Benson, Amanda Elizabeth.....	Christine, North Dakota
Berg, Ferol Bretar.....	Salida
Billbrough, E. Robert.....	Denver
Black, William Cormack, Jr.	Denver
Blackmore, John Herbert.....	Grover
Blake, Beryl Helen.....	Twin Falls, Idaho
Bleasdale, Eleanor Irene.....	Brush
Bleeker, George Reuben.....	Ashley, Iowa
Block, Josephine Helene.....	Denver
Bolton, Lucile Helen.....	Cedaredge
Bonesteel, Elise Louise.....	Denver
Bonesteel, Henry Theodore.....	Denver
Booth, Albert Solon.....	Pueblo
Borden, Jeanne	Boulder
Borland, Helen Blanche.....	Wray
Borough, Fred McClaren.....	North Baltimore, Ohio
Borwick, David H.....	Denver
Bourk, Evelyn Marie.....	Denver
Bowdish, Charles Frank.....	Monte Vista
Boyd, William Logan.....	Milliken
Boyington, Vera Marie.....	Denver
Brackney, Mildred.....	Anderson, Iowa
Bradford, Truman Gove.....	Great Falls, Montana
Breidenbach, George Francis.....	Sterling
Brifey, Caroline Flora.....	Pueblo
Britzman, Homer Elwood.....	Colorado Springs
Bromley, Charles Dunham.....	Boulder
Brouk, Charles Ludvik.....	Denver
Brown, Clayton Hogue.....	Boulder
Brown, Elmer Preston.....	Fleming
Brown, Frank Earl.....	Fort Collins
Bryson, Lillian.....	Twin Falls, Idaho
Buchanan, Zora Neva.....	Havelock, Iowa
Bumgarner, Frank Edwin.....	Mountain Home, Idaho
Burger, Charles Roland, Jr.....	Boulder
Burger, Frances Cecilia.....	Boulder
Burger, Frances Marie.....	Boulder
Burgess, Frankie Lynette.....	Steamboat Springs
Bush, Helen Emma.....	Denver
Butterfield, Olin Jack.....	Denver
Byram, John Perkins.....	Mesa
Cambier, Mont VanLare.....	Pueblo
Cameron, T. Cromwell.....	Greeley
Campbell, Effie Mary.....	Las Animas
Campbell, Harte	Boulder
Campbell, Hortense Balderston.....	Boulder
Campbell, Joe Leslie.....	Florence
Campbell, Myra	Arvada
Carey, Leo H.....	Boulder
Carlson, Elsie Marie.....	Las Animas
Carlson, William Ferdinand.....	Canon City
Carr, Mary Ruby.....	Tulsa, Oklahoma
Carr, Raymond M.....	Tulsa, Oklahoma
Casey, Alice Lenore.....	Denver
Casey, Mary Ita.....	Denver

NAME	RESIDENCE
Catlin, Mabel Elizabeth.....	Augusta, Illinois
Cattermole, George Stephenson.....	Boulder
Chambers, Edwin Paul.....	Rocky Ford
Champlain, Fred Edwin.....	Lamar
Chapin, Leverett A.....	Boulder
Cheeley, Otis Joseph.....	Fort Lupton
Chiesa, Mark Victor.....	Boulder
Christensen, Anna.....	Lawson
Christensen, W. Emil.....	Boulder
Clark, Helen Lucile.....	Denver
Clark, Mabel Hartsen.....	St. Edward, Nebraska
Clark, Mildred Elizabeth.....	Boulder
Cleaves, Helen.....	Granada
Clossen, Marie Margaret.....	Arena
Coates, Hallie Logan.....	Lamar
Cobb, Howard Denham.....	Boulder
Cobby, Laurene.....	Denver
Collins, Ludlow Gale.....	Boulder
Collins, U. L.....	Kingsville, Texas
Condit, Zoe.....	Barnum, Wyoming
Coonrad, Mildred Frances.....	Briggsdale
Cordingly, Margaret.....	Denver
Cornell, Dudley Edgar.....	Boulder
Cornwall, Dean Torrey.....	Spencer, Iowa
Corsberg, Herbert Roy.....	Kersey
Cortese, Anthony Bernard.....	Pueblo
Cowell, Bernice Mae.....	Boulder
Cowell, Cora Belle.....	Boulder
Crawford, Marvel Leaman.....	Denver
Creighton, Basil.....	Manitou
Crews, Ida.....	Wray
Croke, Alice Virginia.....	Denver
Cross, William Hutchinson.....	Douglas, Wyoming
Crow, Zoe.....	Wagoner, Oklahoma
Curley, Maude.....	Concord, Nebraska
Curnow, Grace Melrose.....	Idaho Springs
Curtis, Ralph George.....	Saguache
Cushing, Martha Elizabeth.....	Denver
Dahlberg, Loretta.....	Telluride
Dameron, Melvin Kenneth.....	New London, Iowa
Danielson, Frances Ardis.....	Boulder
Darrow, Herman.....	Glenwood Springs
Davenport, Louise.....	Ottawa, Kansas
Davis, Charles Moler, Jr.....	Denver
Davis, Donald Jerome.....	Boulder
Davis, Mary Ethel.....	Colorado Springs
Day, June E.....	Rotan, Texas
DeArmond, Genevieve.....	Parsons, Kansas
Deering, Maybelle Lida.....	Denver
Deibler, Helen Marguerite.....	Leadville
Delliquadri, Paul Hector.....	Pueblo
Demmon, Elsie.....	Boulder
Denison, Margaret.....	Denver
Derby, Eugene M.....	West Alexandria, Ohio
Derryberry, Ward William.....	Grand Junction
Dessert, Katherine.....	Casper, Wyoming
Dickson, Robert William.....	Denver
Dickson, Velma Louise.....	Boulder
Dickson, Winona.....	Denver
Dilley, Marjorie Ruth.....	Canon City
Dillon, Dorothy.....	Denver
Dillon, Stenson.....	Denver
Dodd, Mary.....	Niwot
Dodge, Isabelle Stevens.....	Denver

NAME	RESIDENCE
Doke, Celia Margaret.....	Greeley
Dolezal, George Milton.....	Denver
Donley, Richard Oliver.....	Morrison
Dowler, Theodore Ernest.....	Denver
Drake, Bonnie Blanche.....	Boulder
Drinkwater, Lucile	Denver
Drogemiller, Mildred L.....	Colorado Springs
Dugger, Eva Elizabeth.....	Denver
Durward, Lawrence Archibald.....	Boulder
Duvall, Hunter William.....	Hutchinson, Kansas
Dyatt, Opal Jean.....	Almena, Kansas
Ebert, Gladys	Boulder
Edgar, Elva	Ordway
Einhorn, Nathan Harry.....	Pueblo
Eldred, Helene Marye.....	Boulder
Eldridge, Francelia Whitfer.....	Golden
Elofson, Oliver Wesley.....	Salida
* Ely, Aurelia Stiles.....	Monroe City, Missouri
Engelbrecht, Pearl	Rifle
Enright, Claudia Alice.....	Denver
Fair, Margaret	Boulder
Färmer, Vesta Marion.....	Springfield, Missouri
† Farnsworth, Lewis George.....	Cullison, Kansas
Farrell, Frances Verl.....	Aurora, Nebraska
Feinberg, Herman	Denver
Fenimore, William Eugene	Carthage, Missouri
Fenton, Pauline Hattie.....	Bloomfield, Iowa
Fick, Thelma DeEtte.....	Canon City
Field, Pattie Hockaday.....	Denver
Fitzell, John Alvin.....	Denver
Flamm, Roy Harrison.....	Alamogordo, Texas
Folda, Elva Josephine.....	Boulder
Forrest, Marguerite	Eckert
Franklin, Carrie Elizabeth.....	Denver
Fraser, William George.....	Denver
Frewen, Helen Kathryn.....	Denver
Fruth, Josephine Juaneta.....	Denver
Fuller, Richard Lee.....	Salida
Furman, Gertrude Eulalie.....	Clinton, Iowa
Galbreath, Gladys Armstead.....	Denver
Gamble, Elizabeth Louise.....	Boulder
Gard, Helen Rucker.....	Denver
Garfien, Beatrice	Arvada
Garst, John Delzell.....	Sterling
Gaunt, William Woodruff.....	Brighton
Getty, Heman Charles.....	Montrose
Gibbs, Franklin O'Conner.....	Glenwood Springs
Giffin, Grace Lake.....	Boulder
Girard, Phil Garrett.....	Boulder
Gist, Elizabeth.....	Falls City, Nebraska
Gladden, Ira Edgar.....	Cisco, Texas
Goemmer, Elsie	LaVeta
Goin, Chester Burdette.....	Liberty, Nebraska
Goldberg, Edith Lesly.....	Sterling
Goldberg, Max	Denver
Goodstein, Harry	Denver
Gorman, Shirley Ashbrook.....	Jerome, Idaho
Govreau, Agnes.....	Rocky Ford
Graham, Wilma Marguerite.....	Lander, Wyoming
Graves, Ruth Emeline.....	New Ramer
Gray, Lisle Meredith.....	Pueblo

* Died January, 1920.

† Died March 1, 1920.

NAME	RESIDENCE
Green, Ruby	Wichita, Kansas
Gregory, Thelma Augusta	Denver
Gridley, Eunice Vorres	Kansas City, Missouri
Griffith, Floyd Robert	Norton, Kansas
Groshart, Oscar Doyle	Rifle
Guard, Marion Raymond	Denver
Guillet, Ethel Gladys	Cortez
Guthrie, Ida Virginia	Boulder
Hadley, John Milton	Boulder
Haeseler, Helen	Boulder
Haines, Gladys Katherine	Boulder
Haley, Lucille Scholastica	Holbrook, Nebraska
Hamblet, Joseph, Jr.	Florence
Hamilton, Laura Geneva	Boulder
Hamilton, Margaret	Twin Falls, Idaho
Hamilton, Minnie Frances	Boulder
Hammond, Floyd	Paonia
Hardie, Mark Alexander	Rock River, Wyoming
Hardy, Alice Cecilia	Denver
Harms, Katherine Jane	Paris, Texas
Harrington, Matthew Leo	Durango
Harris, William Bliss	Boulder
Hart, Thelma Ocal	Akron
Hart, Oral Alvin	Akron
Harvey, Marion	Boulder
Hauk, Dorothy	Denver
Hawkins, Beulah May	Manzanola
Hawkins, James Clyde	Manzanola
Hayden, Esther Valee	Denver
Hays, May Talmage	Cripple Creek
Heaton, Earl Hunt	Denver
Hedges, Ralph Alexander	Miami, Arizona
Helton, Vernon D.	Durango
Herzog, Robert Simon	Denver
Hester, Evelyn Obara	Boulder
Hick, Laurence Luce	Delta
Hicks, Nelson	Denver
Hill, Beatrice Elizabeth	Albuquerque, New Mexico
Hix, Clifton Arlie	Rocky Ford
Holland, Josiah Gilbert	Denver
Holmberg, Helen Beatrice	Idaho Springs
Holmes, Helen Mildred	Denver
Hopkin, Robert Douglas	Denver
Hopper, Ellis Glen	Monte Vista
Hopper, Veta	Rocky Ford
Hotchkiss, Frank Watkins	Brighton
Hough, Margaret Ruby	Denver
Houk, William George	Ridgeway
Howarth, Ervin McIntyre	Greeley
Howe, Virginia	Boulder
Howell, Lucile Elizabeth	Trinidad
Hufsmith, Janice Kimball	Casper, Wyoming
Hughes, Bennet	Greeley
Hughes, Helen Louise	Glenwood Springs
Hughlitt, Dorothy Frances	Victor
Hummel, Margaret Gibson	Boulder
Hunt, Harold Kelso	Raton, New Mexico
Hunt, Rupert Lowell	Florence
Hunter, James Walton	Fruita
Hunter, Ralph Thompson	Trinidad
Huntington, Ruth Elizabeth	Denver
Iden, Zepha Maude	Bigelow, Missouri
Irish, Marthan Marie	Boulder
Jackson, Frank	Las Animas

NAME	RESIDENCE
James, Bernice Lucile.....	Boulder
Jamieson, William Gillette.....	Trinidad
Jarvis, Ruth Alice.....	Longmont
Jay, Marjorie Miller.....	Boulder
Jenkins, Christine Lincoln.....	Colorado Springs
Jernigan, Ovid Brown.....	Longmont
Johnson, Colonel Allen.....	Boulder
Johnson, Doris Murray.....	Denver
Johnson, Winfred Harry.....	Boulder
Johnston, Roderick Elmer.....	Denver
Jones, Frances Margaret.....	Boulder
Jones, Frederick Lee.....	Limon
Jones, Josephine Broaddus.....	Greeley
Joyce, Raymond George.....	Boulder
Joyce, William Gerald.....	Durango
Kearney, Louis Everett.....	Boulder
Keck, Francis Bennett.....	Boulder
Kellar, Mary Naomi.....	Boulder
Keller, Rex Edward.....	Jamestown
Kellogg, Richard Aaron.....	Boulder
Kemper, Laurence Ben.....	Denver
Kemper, Lynn Smith.....	Denver
Kempton, Helen Louise.....	Loveland
Kendall, Paul Green.....	Lamar
Kinkel, Carl Voss.....	Fort Morgan
Kirk, Mary Irva.....	Plainview, Nebraska
Kirk, William Corbett.....	Long Beach, California
Kirkmeyer, Thelma.....	Boulder
Knight, Donald.....	Boulder
Knox, Elizabeth Findlay.....	Denver
Koch, Walter Karl.....	Denver
Koperlik, Mina.....	Pueblo
Lackner, Louis.....	Denver
Lamborn, Chester Arthur.....	Denver
Lamborn, Dewey L.....	Denver
Lang, Marion LaJosephine.....	Boulder
Larson, Norman Myron.....	Miami, Arizona
Laub, Ruth.....	Boulder
Law, Agnes.....	Severance
Levy, Clara Charlotte.....	Pueblo
Lilyard, Lucille Evelyn.....	Denver
Lindner, Nora.....	Boulder
Lipscomb, Thomas Walker.....	Rome, Georgia
Litmer, Irma Lucile.....	Denver
Little, Clarence Henry.....	Valley Center, Kansas
Lomax, Florence Louise.....	Boulder
Longstreth, Esther.....	Boulder
Lord, William Edward.....	Denver
Loving, Louise.....	Fowler
Loy, Kemper Abraham.....	West Alexandria, Ohio
Lyman, Ruth Helen.....	Boulder
Lyons, Mary.....	Durango
McCapes, Adelbert Morten.....	Boulder
McDonald, Anna Marguerite.....	Shelton, Nebraska
McDonald, Mabelle Irene.....	Shelton, Nebraska
McDowell, Edward Walker.....	Denver
McGinnes, Inez.....	Boulder
McGowen, Marguerite.....	Denver
McGrew, William Anderson.....	Denver
McInnes, Gertrude.....	Boulder
McKee, Effie Lee.....	Walsenburg
McKibben, Margaret Henrietta.....	Creede
McKinley, Carl Dewey.....	Ault
McKinley, William Wainwright.....	Fowler

NAME	RESIDENCE
McLaughlin, Theodosia	Boulder
McLean, Donald	Lamar
McNicol, Lee Alex.	Salida
McPherson, Dorothy May	Pueblo
McVay, Roy Bruce	Denver
Mabee, Charles Ray	Boulder
Mabee, Zell Forest	Boulder
MacDermald, Gladys May	Denver
Mackey, Emily Ann	Trenton, New Jersey
Mackey, Winnie Mae	Pueblo
MacLennan, Isabel Mary	Denver
MacNaughton, Laura Church	Denver
MacRae, Gladys	Glenwood Springs
Maier, Rolla Rudolph	Wilbur, Washington
Malm, Lawrence Louis	Denver
Maloney, John Thomas	Denver
Mannix, Lucille Marguerite	Denver
Marinoff, May Lily	Denver
Markham, Clarence Arthur	Platteville
Maroney, Roland Francis	Denver
Marsh, Jerry William Q.	Denver
Martindell, Jackson	Denver
Mason, Isabel	Boulder
Matheny, Herman Claire	Scottsbluff, Nebraska
Matzick, Esther Marie Theresa	Boulder
Mayall, James Tully	Boulder
Mealey, Bryan Jennings	Wray
Meddaugh, Ray Carmen	Boulder
Merideth, John Andrew	Boulder
Merry, Iva Lenora	Boulder
Messervé, Theodore Cleland	Boulder
Metz, Mildred LaVon	Pueblo
Meyer, Mary	Olathe
Meyers, Pauline	La Junta
Middlesworth, Eva Marie	Tower Hill, Illinois
Miles, George Wallace	Hugo
Millard, Lester Barnes	Pueblo
Minges, Ralph Virgil	Arvada
Mitchel, Claire Rafford	Cripple Creek
Mitchell, Dorothy	Longmont
Mitchell, Edith Louise	Boulder
Mitchell, Ethel	Boulder
Mitchell, Frances Bertha	Boulder
Mitchell, Howard	Denver
Mitterwallner, Merwin	Denver
Mohr, Clifford Lamont	Erie, Pennsylvania
Moller, Carl L.	Boulder
Moore, Orin Prince	Denver
Moore, Truman Prince	Denver
Mullins, James A.	Denver
Mulrooney, Helen Louise	Denver
Murphy, Clarence E.	Mentor
Murray, Albert Nelson	Saybrook Point, Connecticut
Mussey, John Miller	Denver
Muth, Harold Elbridge	Denver
Muth, Robert Joseph	Denver
Myers, John Leslie	Lamar
Naber, Marie	Wabash, Indiana
Napheys, Benjamin Franklin	Denver
Napier, Barnette T.	Glenwood Springs
Nathan, Dorothy Alice	Pueblo
Neale, Kathleen	Rocky Ford
Neale, Margaret Belle	Hannibal, Missouri
Needham, Helen Marcella	Omaha, Nebraska

NAME	RESIDENCE
Neil, Lois LaVerne.....	Boulder
Nelson, Horace Irwin.....	Heyburn, Idaho
Neville, Florence.....	Loveland
Neville, Helen Charlotte.....	Loveland
Newcomb, Lila May.....	Denver
Newell, George Lina.....	Buena Vista
Nichols, Dwight Leslie.....	Colorado Springs
Noggles, Mary Ruth.....	Boulder
Noonan, Eleanor Margaret.....	Glenwood Springs
Nordby, John Cecil.....	Santa Rita, New Mexico
Norvell, James Rankin.....	Hayden
Nourse, Elizabeth.....	Gunnison
O'Brien, Charles Henry.....	Parker
O'Byrne, George Theodore.....	Denver
Oldenburg, Ray William.....	Glenwood Springs
Olson, Milleread Albertina.....	Galveston, Texas
O'Malia, Angela Allison.....	Boulder
Owen, James Churchill.....	Denver
Parish, John Thomas.....	Twin Falls, Idaho
Parker, Claire Louise.....	Denver
Parker, Myrtle Belle.....	Boulder
Parsons, Roland George.....	Filer, Idaho
Patterson, Jane Elizabeth.....	Denver
Patton, Genevieve.....	Boulder
Patton, Marietta Elizabeth.....	Denver
Paulicheck, Martha Josephine.....	Denver
Pavey, Clarence S.....	Ransom, Kansas
Payne, Ralph Tresise.....	Boulder
Peck, Doris Maude.....	Denver
Peck, Isabel.....	Denver
Pedroja, Lydia.....	Manitou
Pepper, Harry Stewart.....	Denver
Perry, Leslie Sivers.....	Norton, Kansas
Perry, Louise E.....	Waco, Texas
Perry, Mabel E.....	Norton, Kansas
Perry, Philip Kendell.....	Denver
Person, Ernestine Alberta.....	Fort Collins
Petersen, Harry.....	Colorado Springs
Peterson, Earl Herman.....	Boulder
Peterson, Wesley Adelbert.....	Denver
Phillips, Lawrence Emmert.....	Rockvale
Pizer, Harry Leon.....	North Platte, Nebraska
Pizer, Joseph Philip.....	North Platte, Nebraska
Platt, Dorothy.....	Denver
Plettner, Gerald H.....	Denver
Pleus, Robert James.....	Denver
Polk, Edward Winfield.....	Little Rock, Arkansas
Ponsford, Dorothy Muriel.....	Denver
Powers, Marjorie Elizabeth.....	Boulder
Pratt, Roy Owen.....	Enid, Oklahoma
Price, Jack William.....	Cripple Creek
Price, John Brown.....	Allendale, Illinois
Proctor, Sue.....	Grand Blanc, Michigan
Proske, Florence Martha.....	Denver
Queen, Clara Louise.....	Denver
Radetsky, Meldon.....	Denver
Rawles, Wallace.....	Glenwood Springs
Ray, Donald Henderson.....	Osceola, Nebraska
Reed, Paul Wilson.....	Boulder
Reid, Dorothy Bernardine.....	Boulder
Rendle, James Alfred, Jr.....	Denver
Richards, Lenora Dorothy.....	Boulder
Richards, Mabel Luella.....	Central City
Richter, Albert Henry.....	Arvada

NAME	RESIDENCE
Rigney, John Calhoun, Jr.	Glenwood Springs
Rinker, Theodore Wilson	Denver
Ripley, George Lewis	Denver
Roach, Helen Louise	Loveland
Roberts, Leonard Lloyd	Florence
Roberts, Lucy Dean	Hotchkiss
Robeson, Frank Kern, Jr.	Champaign, Illinois
Robinson, Sam Milton	Denver
Rogers, Loretta Ellen	Denver
Rood, Vivian	Julesburg
Roslund, Oliver Sidney	Denver
Rover, Henry Paul	Denver
Rowand, Edward White	Boulder
Rowley, Thomas Richard	Douglas, Wyoming
Rubin, Celia	New York City, New York
Saar, Vera	Boulder
Salisbury, Jack William	Denver
Salisbury, Maurice Barnett	Osawatomie, Kansas
Salter, John West	Boulder
Sayer, Mildred Josephine	Denver
Scarlett, Silvia	Grand Junction
Schaeffer, Norton Lovejoy	Denver
Schilling, Mona	Boulder
Schmidt, Zelma Ione	Kansas City, Missouri
Schoenthal, Harold George	Denver
Schultz, Jerome Travis	Rocky Mount, North Carolina
Seofield, Morris Henry	Brighton
Scott, Minnie Agnes	Boulder
Scott, Nellie June	Boulder
Scott, Rowena	Platteville
Seal, Alberta Barbara	Denver
Secrest, Estalene Alice	Arvada
Secrest, Grace Elizabeth	Arvada
Secrest, Raymond Thompson	Arvada
Seed, Elvira Lily Edwina	Boulder
Sessel, Ben-Fleming	Boulder
Shaw, Margaret Amanda	Denver
Shelton, Gladys R.	Hayden
Shere, Ben Harold	Denver
Sherwin, Grange Standart	Denver
Shoemaker, Abbott Hall	Boulder
Shoemaker, Florence Ursula	Boulder
Sim, Frances Morrison	Boulder
Skinner, Olive Anne	Denver
Skyles, Verna Elizabeth	Fort Madison, Iowa
Skyles, Vida	Fort Madison, Iowa
Small, Dorothy	Boulder
Smiley, Mary Elizabeth	Tinmath
Smillie, Evelyn Lysle	Eaton
Smith, Charline	Boulder
Smith, Colin A.	Meeker
Smith, Earl Grantham	Washington, D. C.
Smith, Frank Reid	Boulder
Smith, Gladys M.	Greeley
Smith, McLane, Jr.	Boulder
Smith, Mack Clifford	Fort Lupton
Smith, Martha Ann	Roodhouse, Illinois
Smith, Myrle Zola	Minturn
Smith, Robert Burns	Brilliant, New Mexico
Smutz, Margaret	Fort Collins
Smyth, George Shirley	Salida
Sneddon, Eleanor Lettie	Boulder
Snyder, Minnie Rose	Grand Junction
Sohns, Rosaline	Boulder

NAME	RESIDENCE
Soifer, Isidore	New York City, New York
Solt, Lois	Denver
Spangler, George Sheldon	Leadville
Sparhawk, Elizabeth	Denver
Sparks, Mary Lillian	Shelbina, Missouri
Spears, Rosamond	Denver
Spencer, Florence May	Montrose
Squire, Ione Ruhama	Aberdeen, South Dakota
Stabler, Edmund Ian	Austin
Stailey, Victor O.	Denver
Stansfield, Laura	Denver
Stark, Roene Opal	Boulder
Starks, Charles Robert	Denver
Starks, Vera May	Denver
Steward, Paul Edgar	Lamar
Stewart, Margaret	Denver
Strang, Stephen Bartow	Denver
Street, John Ralph	Boulder
Sullivan, Lillian	Denver
Sunderland, Franklin Vaughn	Edgewater
Sutcliffe, Lester Bernard	Westcliffe
Swetnam, John Franklin	Colorado Springs
Syman, Leo Weil	Denver
Taylor, Weston Edward	St. Louis, Missouri
Tegland, Lenora Edith	Boulder
Temple, Laura Marie	Hayden
Teutenberg, Eula Green	Boulder
Thomas, Herschell Stephens	Flagler
Thompson, Frances Ernesta	Boulder
Thompson, M. Wood A.	Las Animas
Thompson, Ruth Louise	Denver
Thompson, Thelma Marguerite	Wheatland, Wyoming
Thompson, William Ferrell	Boulder
Thorpe, Ruth	Boulder
Tomlinson, Doris Lanier	Memphis, Texas
Touhy, George William	Salida
Townley, Thena Elizabeth	Colorado Springs
Trezise, Pauline Evelyn	Boulder
Trezise, Ruth Ann	Boulder
Tschiffely, Elizabeth Elberta	Washington, D. C.
Tune, Dessie	Boulder
Turner, George Lynn	Lyons
Turpin, Ethel Winifred	Brush
Unfug, George Arnold	Walsenburg
Van Bruggen, Anita Juliett	Maxwell, New Mexico
Van Diver, Frank Harvey	Las Animas
Van Male, John Edward	Denver
Vincent, Albert Horace	Montrose
Vogel, Florence Elizabeth	Boulder
Voorhees, Myrtle	Walters, Oklahoma
Walker, Lawrence Brice	Pueblo
Wallace, Bruce Breckenridge	Denver
Walsh, Bert	Denver
Walsh, Edna Marguerite	Leadville
Walter, Frank Joseph	Denver
Walter, Harold John	Pueblo
Walton, Clara	Kimberly, Idaho
Ward, Louisa Atkinson	Denver
Ware, Roy A.	Boulder
Warriner, Virginia	Denver
Weaver, Marion Karl	Rocky Ford
Webster, Bethuel Matthew, Jr.	Denver
Weese, Albert Meyer	Denver
Weiss, Adolph W.	Denver

NAME	RESIDENCE
Wells, Genevieve Elizabeth.....	Cheyenne Wells
Wenger, Hallie May.....	Eckert
West, Walter G.....	Grand Island, Nebraska
Whistler, Rebecca.....	Denver
Whitaker, William Henry.....	Shelbyville, Illinois
Whitcomb, George Austin.....	Buffalo Creek
White, Elizabeth Frances.....	Boulder
White, Miller.....	Golden
White, William Faye.....	Fruita
Whitesides, Mildred.....	Texarkana, Arkansas
Wiest, Helen Marie.....	Boulder
Wild, Gertrude.....	Cisco, Texas
Wildy, Lois Abena.....	Boulder
Willburn, Charles.....	Clover
Willburn, Nancy Alice.....	Clover
Williams, Robert Hillard.....	Breckenridge
Williamson, Geraldine Ruth.....	Central City
Willson, John Alfred.....	Denver
Wilson, Donald Harlow.....	Denver
Wilson, George Gruver, Jr.....	Montrose
Wilson, William.....	Glenwood Springs
Winchell, Gladys.....	Waco
Wittemyer, Jessie.....	Boulder
Woodside, Forrest Shields.....	Yuma
Woodward, Elizabeth Redin.....	Fort Logan
Woodward, Gladys.....	Lafayette
Worden, Tessabel Marguerite.....	Ann Arbor, Michigan
Worley, Isabell.....	Denver
Wray, Jess Ward.....	Olathe
Wright, Clara Williamson.....	Denver
Writer, Dean Jasper.....	Denver
Zahorski, Theodore Saunders.....	St. Louis, Missouri
Zanoni, John Louis.....	Denver
Zimmerman, Earl Henry.....	Vroman
Zuckerman, Samuel Stuart.....	Boulder

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SPECIAL STUDENTS

NAME	RESIDENCE
Abbott, Amy G.....	Laramie, Wyoming
Abell, Wendell Edward.....	Riley, Kansas
Alexander, Acel William.....	Denver
Bardsley, Mrs. William J.....	Ogden, Utah
Barker, Agnes.....	Providence, Rhode Island
Barney, Hazel DeElda.....	Boulder
Bates, John Wesley.....	Greeley
Blachly, Edward Hugh.....	Boulder
Bradbury, Ethel Poley.....	Boulder
Branine, Mildred Axtell.....	Newton, Kansas
Calkins, Irven Ross.....	Boulder
Chew, Mary B.....	Pueblo
Christie, Ralph Horton.....	Calais, Maine
Cleveland, Nellie Charline.....	Boulder
Cooley, Rhodora E.....	Boulder
Cordes, Howard Frederick.....	Cincinnati, Ohio
Cox, William Elbert.....	Denver
Demoret, Vernon Butterfield.....	Montrose
Donnells, Ray Cuttle.....	Chillicothe, Ohio
Fauquier, Ruth.....	Denver
Girard, Grant Buell.....	Boulder
Hertert, Emile George.....	Denver
Jones, Leonard.....	Boulder
Konkel, Cedric Paxton.....	Springfield

NAME	RESIDENCE
Laird, Fannie Jane.....	San Antonio, Texas
Levick, Earl Gilmore.....	Boulder
Levine, Olga	Boulder
Lunsford, Charles Julian.....	Dallas, Texas
Majors, Rufus W.....	Dawson, Texas
Moore, Isaac Leslie.....	Holbrook, Arizona
Moore, Vinton Aubrey.....	Oskaloosa, Iowa
Moritz, Carl Elstun.....	Denver
Moyer, Lorenzo Hollister.....	Boulder
Nelson, Ida Mae.....	Denver
Owen, Belle	Boulder
Parrish, Clarence C.....	Boulder
Polson, Dorothy.....	Hoquiam, Washington
Rumsey, Elizabeth M.....	Denver
Russell, Martha Montague.....	Boulder
Russell, Mary E.....	Boulder
Schlacks, Florence B.....	Denver
Sithens, Angie Grieb.....	Philadelphia, Pennsylvania
Smith, Ruby Catharine.....	Dallas, Texas
Squire, Ralph	Boulder
Stoner, Minna A.....	Boulder
Stork, Alma Gertrude.....	Riverton, Wyoming
Strumquist, Anna Wilds.....	Albuquerque, New Mexico
Terry, Pearl Ethel.....	Colorado Springs
Thomas, Beth	Colorado Springs
Tighe, Thomas, Jr.....	Chicago, Illinois
Turtle, Hazel Jane.....	Denver
Turtle, M. Alice.....	Denver
Weber, Emma W.....	Denver
Williams, Robert Earl.....	Golden
Williams, Roy Amos.....	Denver
Wood, Georgia Ruth.....	Fort Morgan

COLLEGE OF ENGINEERING

SENIOR CLASS

NAME		RESIDENCE
Alford, Reuel Stillman.....	E.E.	Castle Rock
Allen, Harold	C.E.	Cripple Creek
Apel, Philip George.....	C.E.	Fort, Lupton
Baker, Gano Reeder, Jr.....	E.E.	Denver
Ball, James Ogden.....	C.E.	Crested Butte
Bartlett, Earl Alfred.....	C.E.	Denver
Burkhard, Myron Joseph.....	Ch.E.	Florence
Carpenter, Edwin Gilbert.....	C.E.	Mancos
Chandler, Harold William.....	M.E.	Denver
Coulson, Donald Chaney.....	Ch.E.	Ignacio
Creglow, Frederick Delmar.....	C.E.	Boulder
Crispelle, Kenneth Guy.....	E.E.	Leadville
Dungan, Paul	Ch.E.	Boulder
Eaves, Elsie	C.E.	Sterling
Foulk, Theodore Marlowe.....	E.E.	Denver
Grove, Arthur Edwin.....	Ch.E.	Grand Junction
Hamilton, Robert Fox.....	M.E.	Boulder
Hansen, Arnold Adolph.....	E.E.	Denver
Harvey, Eugene Cochran.....	C.E.	Sante Fe, New Mexico
Herman, Harry Henry.....	M.E.	Boulder
Hill, Ralph Marcus Douglas.....	M.E.	Albuquerque, New Mexico
Hyatt, Ernest Fletcher.....	Ch.E.	Alamosa
Iverson, Conrad Marcellus.....	M.E.	Longmont
Jewett, John Quincy.....	C.E.	Denver
Johnson, Alan Hawley.....	E.E.	Denver
Johnson, Algon Benjamin.....	C.E.	Collbran
Jones, Edward Maurice.....	Ch.E.	Rockvale
Kelsey, Harold Martin.....	E.E.	Denver
Kerr, Francis Payne.....	E.E.	Denver
Levine, Hyman	M.E.	Boulder
Lind, Raymond William.....	C.E.	Chicago, Illinois
Melton, Lou Alta.....	C.E.	Boulder
Morehouse, Harry Clarence.....	M.E.	Denver
Murray, Lee James.....	E.E.	Denver
Orris, James Ralston.....	Ch.E.	Pueblo
Page, Henry Anthony.....	E.E.	Denver
Rice, Harold Frederick.....	E.E.	Ouray
Richardson, George Sherwood.....	C.E.	Boulder
Rymer, Donald Hugh.....	E.E.	Edgewater
Sanders, Vernon Heber.....	Ch.E.	Durango
Scudder, Ward Felix.....	E.E.	Denver
Steinmetz, William John.....	C.E.	Boulder
Stone, Caleb	C.E.	Denver
Stubbs, Frank Whitworth, Jr.....	C.E.	Delta
Tandy, Ben George.....	E.E.	Boulder
Taylor, Robert Hugh.....	M.E.	Denver
Warner, Arthur Howard.....	E.E.	Carr
Whitney, Russell Lee.....	E.E.	San Benito, Texas
Wolff, Hiram Bradley.....	Ch.E.	Denver
Wood, Carl	E.E.	Denver

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JUNIOR CLASS

NAME		RESIDENCE
Anderson, Glenn Willard.....	M.E.	Boulder
Babcock, Jasper Dwight.....	E.E.	Steamboat Springs
Beresford, Kenneth Edwin.....	E.E.	Boulder

NAME	RESIDENCE
Blom, Max	E.E. Boulder
Brinkley, Bert	Ch.E. Boulder
Brooks, Jessie	C.E. Ames, Iowa
Brown, James Schuyler	C.E. Denver
Buck, Arnold Friederich	M.E. Denver
Bunting, Joseph William	M.E. Lafayette
Burk, Harold DeWitt	Ch.E. Sterling
Catterson, Frehn Hutchins.	Ch.E. Boulder
Caughy, Clarence Harold	M.E. Boulder
Clarke, Thomas Howard, Jr.	E.E. Eureka
Crowley, Corydon Henry	E.E. Boulder
Cuthbertson, Robert Emmet	Ch.E. Denver
Devenish, George Bushe	M.E. Denver
Dickason, Gray David	Ch.E. Denver
Dougherty, Vivian Channing	M.E. Salida
Dunstone, Arnold Edward	E.E. Denver
Easton, Frank Artemus	E.E. Denver
Elder, Andrew Darwin	Ch.E. Colorado Springs
Everingim, Charles Stanley	Ch.E. Denver
Farrar, Clyde Leo	E.E. Myrtle Creek, Oregon
Freeman, Tom Thompson	M.E. Denver
Haffey, Patrick Joseph	Ch.E. Durango
Harris, Albert George	M.E. Aspen
Harry, John	C.E. Canon City
House, Cadwell Burl	M.E. Boulder
Hovlid, Alvah Martin	Ch.E. Longmont
Huntington, Everett Samuel	C.E. Denver
Inman, Brayton James	C.E. Boulder
Irion, James Robert	E.E. Denver
Jennings, Frank Albert	C.E. Westcliffe
Johnson, Jerome McKinley	M.E. Gunnison
Jones, Daniel Sherman, Jr.	C.E. Center
Kelty, William Francis	C.E. Denver
Kerr, Clarence Leroy	E.E. Globe, Arizona
Kiefer, Clarence Vincent	C.E. Fruita
Koernig, Raymond Chandler	M.E. Denver
Kohler, Frederick William	M.E. Boulder
Kretschmer, Charles, Jr.	E.E. Pueblo
Lalli, Anthony Stephen	E.E. Louisville
Leigh, Haslett B.	Ch.E. Burley, Idaho
Lillie, Charles William	E.E. Denver
McFarlane, Frank Lloyd	M.E. Denver
McNerny, Townsend	M.E. Denver
Major, William D.	M.E. Telluride
Marx, Paul	E.E. Denver
Meyer, Harry	C.E. Denver
Miller, Hyman Paul	C.E. Denver
Morgan, Sam Russell	E.E. Hanceville, Alabama
Moss, Kendall Frank	E.E. Denver
Musser, John McCoy	Ch.E. Denver
O'Kelley, Francis Cornelius	E.E. Telluride
Parr, Elza Wellington	C.E. Boulder
Patterson, Ernest George	Ch.E. Fort Morgan
Petersen, Charles William	C.E. Denver
Pinsky, Joseph	M.E. Denver
Purinton, Roy Llewellyn	E.E. Bailey
Rixford, Charles Orville	M.E. Denver
Robertson, Oscar Lofton, Jr.	M.E. Denver
Rust, Edgar Hoyt	E.E. Boulder
Schrepferman, Chester Montgom'y	C.E. Denver
Sellers, Jesse Earl	Ch.E. Boulder
Seyler, Paul Kruger	E.E. Denver
Stiefel, Alfred Carl	C.E. Denver
Suess, Willard Frederick	E.E. Denver

NAME	RESIDENCE
Sumner, George Ellsworth.....	E.E. Greeley
Summers, William Glen.....	Ch.E. Denver
Vail, Kenyon Colyar.....	Ch.E. Denver
Wadley, Frederick Hinsdale.....	Ch.E. Denver
Wigginton, Frank Charles.....	Ch.E. Denver
Wylam, Clarence Chamberlain.....	M.E. Boulder

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SOPHOMORE CLASS

NAME	RESIDENCE
Abrams, Richard Henry.....	C.E. Butler, Pennsylvania
Adams, Maryyn Smith.....	E.E. Denver
Alexander, Harold Everett.....	Ch.E. Castle Rock
Allan, Walter James.....	M.E. Denver
Allard, Ambrose Clamant.....	E.E. Evanston, Wyoming
Allen, Alexander J.....	E.E. Glenwood Springs
Almgren, Earl William.....	E.E. Fairplay
Altwater, Herbert George.....	C.E. Denver
Anderson, David Frank.....	E.E. Collbran
Andrews, Lloyd Edward.....	C.E. Los Angeles, California
Bagley, Walter Glenn.....	M.E. Rouse
Bahret, Clarence Andrew.....	Ch.E. Denver
Belcher, Alexander Gray.....	E.E. Boulder
Blanchard, Paul.....	M.E. Boulder
Brainard, Boyd Bertrand.....	M.E. Denver
Braukman, Clarence Augustus.....	E.E. Denver
Buckland, Bruce.....	M.E. Walsen
Bullock, Philip Wesley.....	M.E. Merino
Burbank, Warner VanVleck.....	E.E. Red Cliff
Burroughs, Earl Rollo.....	M.E. Boulder
Campiglia, Eugene J.....	E.E. Denver
Card, Lawrence Baker.....	M.E. Denver
Carlson, Paul Howard.....	Ch.E. Twin Falls, Idaho
Carpenter, Marion Scott.....	Ch.E. Denver
Cassell, Wallace Lewis.....	E.E. Greybull, Wyoming
Chamberlain, Berton Elmer.....	M.E. Craig
Clampitt, Audis.....	Ch.E. Mancos
Clark, Albert Farnham.....	Ch.E. Mancos
Clifford, Joseph Michael.....	E.E. Derby
Cohig, James Fanning.....	C.E. Denver
Cole, Thomas David.....	M.E. Denver
Collins, Arthur Lancelot.....	M.E. Denver
Cooper, Rolla King.....	M.E. Montrose
Cowger, Winslow Llewellyn.....	M.E. Boulder
Crocker, Harris Leslie.....	Ch.E. Denver
Croghan, Ira Dewey.....	Ch.E. Boulder
Crowne, Irving Henry.....	M.E. Westfield, New Jersey
Custer, Brooks Orland.....	Ch.E. Boulder
Daniels, Frank Junior.....	M.E. Denver
Denning, Jay Wayne.....	M.E. Denver
Dice, Marion English.....	Ch.E. Lafayette
Dickey, Donald Edgar.....	Ch.E. Windsor
Dimm, Walter Leisenring.....	Ch.E. Denver
Divine, Harold Eber.....	M.E. Palisade
Doolittle, Frederick Browne.....	E.E. Aspen
Doud, Arthur Master.....	E.E. Silverton
Elliott, Richard.....	C.E. Colorado Springs
Eppich, Karl Edward.....	C.E. Denver
Erierson, Albert.....	E.E. Boulder
Feldman, Merrick Rogers.....	E.E. Denver
Fertig, Wendell Welby.....	Ch.E. La Junta
Ford, Perry Miers.....	M.E. Boulder
Fuller, Harry Clark.....	E.E. Eagle
Funk, Herman, Jr.....	E.E. Fort Lupton

NAME		RESIDENCE
Gedney, Oswald Lawrence.....	Ch.E.	Denver
Greenlee, William David.....	M.E.	Colorado Springs
Griffith, Paul Ellis.....	M.E.	Milliken
Gross, Alonzo Clarence.....	Ch.E.	Trinidad
Gross, Leo Henry.....	E.E.	Denver
Harms, Henry Bennett.....	M.E.	Loveland
Harshman, Frank.....	C.E.	Wiggins
Heacock, Lester Payson.....	C.E.	Boulder
Hebel, Ivan Lee.....	Ch.E.	Denver
Hemingway, Dwight.....	Q.E.	Erie
Henney, Frederick Allison.....	E.E.	Delta
Hieronymus, Rex Eugene.....	E.E.	Boulder
Hoffmeister, Harold Arthur.....	Ch.E.	Boulder
Holman, Edward Augustus.....	M.E.	Boulder
Horner, Arthur Stewart.....	C.E.	Topeka, Kansas
Horton, Carroll Tunis.....	E.E.	Denver
Houston, Dallas James.....	C.E.	Canon City
Inman, Merrill.....	E.E.	Julesburg
Jacobson, Iver Norman.....	C.E.	Boulder
Jenkins, John Caden.....	M.E.	Pueblo
Johnson, Kent Wilbur.....	C.E.	Boulder
Keel, Howell Clifford.....	E.E.	Boulder
Keeler, Raymond Carlyle.....	Ch.E.	Denver
Kellar, Herbert Austin.....	E.E.	Boulder
Kennedy, Joseph Murle.....	Ch.E.	Okmulgee, Oklahoma
Klemme, Claude Chase.....	C.E.	Boulder
Klemme, George William.....	E.E.	Boulder
Lawrence, VanBuren.....	M.E.	Boulder
Lee, John Adam.....	E.E.	Boulder
Lehman, Lyle Graham.....	E.E.	Denver
Lester, Oliver C., Jr.....	M.E.	Boulder
Lewis, Perley Mitchell.....	C.E.	La Junta
Linsenmaier, William Richard.....	C.E.	Denver
Longenberger, Lamar.....	Ch.E.	Hazelton, Idaho
McNeal, Donald Hamlin.....	C.E.	Denver
McNerny, Clyde Freeling.....	M.E.	Denver
MacIntyre, Wallace Jeffrey.....	M.E.	Florence
Mauntel, Charles Ivan.....	E.E.	Alva, Oklahoma
Mellett, John E.....	E.E.	Boulder
Mellors, Thomas.....	E.E.	Boulder
Milner, Carlisle K.....	M.E.	Arvada
Miner, Earl James.....	C.E.	Denver
Morgan, Harry Atlee.....	E.E.	Boulder
Morsch, Harold Joseph.....	Ch.E.	Denver
Nix, Whitfield Stephen.....	Ch.E.	Florence
Nossaman, Robert John.....	M.E.	Pagosa Springs
Oliver, Chester Brownlee.....	C.E.	Boulder
Olson, Arvid John.....	M.E.	Denver
Owen, Robert Hancock.....	E.E.	Denver
Paland, Louis Raymond.....	E.E.	Denver
Palmer, Dewey Homer.....	M.E.	Boulder
Palmer, Harlan Baldwin.....	E.E.	Denver
Pickel, Lewis Marion.....	E.E.	Boulder
Pneuman, Frederick Ashley.....	C.E.	Denver
Porter, Russell Wolcott.....	E.E.	Boulder
Price, Julius F.....	M.E.	Boulder
Pringle, Herman.....	C.E.	Denver
Randall, Charles Volney.....	C.E.	Boulder
Randall, William Austin.....	C.E.	Boulder
Read, Chester Louis.....	Ch.E.	Sterling
Reade, Arthur Cole.....	Ch.E.	Denver
Redd, Samuel B.....	C.E.	Boulder
Reed, Enoch Harvey.....	E.E.	Wray
Rettenmeyer, Francis Xavier.....	E.E.	DeBeque

NAME	RESIDENCE
Richardson, William Eddy, Jr.	C.E. Boulder
Robertson, Lawrence Marshall	E.E. Denver
Schalk, Robert Louis	Ch.E. Rawlins, Wyoming
Schmid, Norman Charles	C.E. Denver
Schnadmill, Maximillian Mike	C.E. Denver
Schuch, Leland Stanford	E.E. Denver
Shapiro, Charles Harry	Ch.E. Denver
Shapiro, Isadore Benjamin	Ch.E. Denver
Smith, Lamont Eldredge	C.E. Evergreen
St. Clair, James Alexander, Jr.	M.E. Longmont
Stein, Jacob John	C.E. Denver
Stewart, Edgar Eugene	C.E. Denver
Sweet, Charles Leroy	E.E. Mapleton, Iowa
Sylvester, Thomas Donnell	E.E. Albuquerque, New Mexico
Talbot, Maxwell Ervin	M.E. Lake Charles, Louisiana
Tamminga, John Simon	C.E. Denver
Temple, Clyde Verne	E.E. Elkton
Toohar, James Leslie	E.E. Pueblo
Tovani, Ernest Peter	E.E. Denver
Trinnier, Charles Marvin	Ch.E. Denver
Vastine, Marvin William	M.E. Fowler
Vidal, Emile Numa	Ch.E. Denver
Vidal, Henri Brownell	Ch.E. Denver
Vincent, John Thomas	E.E. Victor
Vodianoy, Harry	M.E. Denver
Wallace, Arthur Wycoff	C.E. Boulder
Wallace, John James	C.E. Ladoga, Indiana
Walz, Frank Christian	E.E. Pueblo
Ware, Charles Myron	M.E. Salt Lake City, Utah
Whiteside, Wallace	M.E. Fort Lupton
Willard, James Lee	C.E. Denver
Williams, O. Sherwood	E.E. Greeley
Williams, Verne Homer	M.E. Golden
Withers, Jack Newton	C.E. Dolores
Work, Robert Van Horn	M.E. Pueblo
Zinn, Harry Arl	E.E. Denver

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FRESHMAN CLASS

NAME	RESIDENCE
Agnew, Ralph Phillip	Denver
Allen, Herbert Stanley	Deadwood, South Dakota
Allen, Wilbur Crossan	Salida
Allen, Willard John	Cripple Creek
Allred, Ivan Albert	Cherryvale, Kansas
Andrews, William Warren	Pawhuska, Oklahoma
Arnold, Otto Bernard	Denver
Avery, Frank Mastin	Kansas City, Missouri
Bailey, James Orville	Canon City
Baker, Bertrand Maurice	Denver
Baker, Irving Monroe, Jr.	Denver
Baker, Willard Dwight	Pueblo
Barth, Albert Holmes	Arvada
Baxter, Charles Valentine	Denver
Bell, Clinton Clifford	Limon
Bennett, Wilmot Vincent	Hotchkiss
Bentley, Charlton Blair	Sidney, Nebraska
Beveridge, George Maxwell	Olathe
Blake, Francis Jerome	Denver
Bolam, Jack Robert	Boulder
Bole, James Leland	Wellington
Bowden, Charles	Boulder
Bowman, Donald Warren	Breckenridge

NAME	RESIDENCE
Boyer, Stacy	Boulder
Boylston, DuBose	Denver
Brewer, Richard Nelson	Jerome, Idaho
Brown, Elmer M.	Boulder
Brown, Jackson, Jr.	Topeka, Kansas
Burbank, Frank Lysander	Red Cliff
Butler, Kenneth Anthony	Summit, New Jersey
Card, George Holt	Denver
Catron, Murry Adalie	Boulder
Caywood, Russell Eric	Denver
Chamberlain, Merton Henry	Craig
Chandler, Fred Allen	Denver
Chapin, Noel	Meeker
Chason, John Wesley	Ochlochwee, Georgia
Clarke, Dewey Hobson	Eureka
Coleman, Glenn Alfred	Saguache
Coleman, LeRoy Charles	Saguache
Commons, John P.	Boulder
Courtney, Joseph Daniel	Custer City, Oklahoma
Craig, Homer Vincent	Boulder
Craise, Frederick Lowry	Denver
Cresto, Victor Emmanuele	Trinidad
Crutcher, Maye Monroe	Loveland
Cuneo, Joseph	Boulder
Curley, Thaddeus LaVerne	Concord, Nebraska
Darrow, Horace Frederick	Glenwood Springs
Davidson, Walter McDowell	Denver
Davis, Raymond John	Olathe
Dean, Allen Theodore	Clayton, New Mexico
Denman, Richard Tompkins	Denver
Denslow, Clyde Baldwin	Arvada
Derrington, Edward Royal	Pueblo
Dewey, Glen Hamilton	Pueblo
Dexheimer, Paul Wesley	Denver
Dick, Henry Victor	Denver
Downing, Lloyd	Boulder
Eckel, John Glenn	Denver
Edmunds, Philip Clark	Wray
Edwards, Paul Nelson	Denver
Emerson, Warren Nelson	Boulder
Ericson, Francis	Boulder
Evans, Carl Dean	Sterling
Faires, Virgil Morning	Atlanta, Georgia
Ferguson, Maxwell	Albuquerque, New Mexico
Fingado, Francis Henry	Arlington
Fisher, Andrew	Boulder
Fitzmorris, Clark S.	Greeley
Forsberg, Melvin Leroy	Denver
Frantz, Frank, Jr.	Boulder
Freeman, Frank	Denver
Frobes, Clarence David	Salt Lake City, Utah
Frobes, Daniel Charles	Salt Lake City, Utah
Gagg, Rudolph Farwell	Durango
Garland, Clyne Fredrick	Boulder
Garlett, Samuel	Denver
Gephart, George Frederick	Trinidad
Gimlett, Irvin G.	Salida
Given, Jacqueline	Pueblo
Goemmer, Adolph George	LaVeta
Goss, Cecil Goodwin	Boulder
Graeber, Rowland Webster	Denver
Graham, Charles William, Jr.	Gallatin, Missouri
Graham, Robert Alexander	Monte Vista

NAME	RESIDENCE
Gross, Samuel Miriam.....	Denver
Hahn, Paul S.....	Denver
Hahnwald, Carlos Junius.....	Denver
Hahnwald, August Paul.....	Denver
Handy, Robert Morton, Jr.....	Boulder
Harding, Roland Orlando.....	Buhl, Idaho
Hardy, William Wendell.....	Montrose
Harvey, James H.....	Twin Falls, Idaho
Hawkins, Harry Curtis.....	Boulder
Heckendorn, George James.....	Greeley
Herbert, Thomas G.....	Denver
Herzberger, Cecil Leo.....	Fowler
Heydrick, Harold Frank.....	Muskogee, Oklahoma
Hill, Arthur Lefevre.....	Denver
Hoxie, Louis Cole.....	Boulder
Hutchings, Donald Christie.....	Arvada
Hutton, Fred Lucus.....	Florence
Jack, Delbert Eugene.....	Florence
Johnson, Leonard Earl.....	Leadville
Johnson, Raymond.....	Crowheart, Wyoming
Jones, Evan Richard.....	Englewood
Joyce, Ralph.....	Boulder
Kahn, Joseph.....	Denver
Keck, Fred Burdette.....	Denver
Keller, Charles William.....	Denver
King, Robert Callen.....	Junction City, Kansas
Kirkpatrick, Paul William.....	Denver
Kitch, Donnell Francis.....	Cheyenne Wells
Knapp, Albert Myer.....	Denver
Knowles, Donald Plummer.....	Denver
Knuth, Harold William.....	Westcliffe
Kroell, William Raymond.....	Louisville
Lackner, Jacob.....	Denver
Laudig, Mark Andrew.....	Anderson, Indiana
Leech, Lawrence B.....	Brush
Leibovitz, Harry.....	Denver
Lenger, Leonard Lafayette.....	Brush
Lenning, George.....	Brush
Lifshitz, David Arnold.....	Denver
Lindrooth, Charles M.....	Denver
Link, Jesse Root.....	Denver
Lomax, Stanley Howard.....	Boulder
Lorje, Herman.....	Denver
Lowes, Gilbert Eaton.....	Sedgewick
Luethi, Frank Eugene.....	Boulder
McBride, Charles Ben.....	Denver
McInnes, John Gordon.....	Boulder
McKenna, Hugh Leslie.....	Breckenridge
McMann, Forrest Stanley.....	Beloit, Kansas
McNutt, William H.....	Hobart, Oklahoma
McRae, John Calendar.....	Washington, D. C.
Maltby, Horace Bennett.....	Denver
Marr, John Douglas.....	Denver
Marshall, Harold Wine.....	Denver
Marvel, Sherman Edward.....	Hastings, Nebraska
Meador, Victor Lawrence.....	Hotchkiss
Mercer, Glen Ludlow.....	Boulder
Merrill, Marcellus Samuel.....	Steamboat Springs
Meyer, Alva Henry.....	Denver
Miller, Ralph Emerson.....	Albuquerque, New Mexico
Milstein, Isadore Joseph.....	Denver
Moler, Francis Lain.....	Denver
Monson, Lourie Arvid.....	Noble, Iowa

NAME	RESIDENCE
Montgomery, William Lewis.....	Edgewater
Morris, Earl Chester.....	Denver
Morris, Virgil Irving.....	Colorado Springs
Mullgardt, Alex Steffens.....	San Francisco, California
Munn, Walter Wilson.....	Pueblo
Murphy, Joseph Arthur.....	Okmulgee, Oklahoma
Nelson, Dietz	Omaha, Nebraska
Nelson, George Walter.....	Leadville
Nelson, Uriel	Brush
Neve, Henry	Denver
Nichols, Earl E.....	Austin
Nichols, Roy Chester.....	Austin
Norton, Leonard Sherman.....	Aurora
Oberholtz, Lester	Denver
O'Brien, Roy Elsmere.....	Dawson, New Mexico
Oldenburg, Paul Roy.....	Glenwood Springs
Oliver, Leland Wilbert.....	Boulder
Palmer, Harold Cornell.....	Boulder
Parks, Elliott Howard.....	Clinton, Missouri
Parsons, George S., Jr.....	Denver
Ploof, George Arthur.....	Enid, Oklahoma
Porter, Carl	Collbran
Powell, George Washington.....	Las Animas
Pratt, Walter Stephen.....	Denver
Prince, Catherine Maclin.....	Denver
Randell, Russell Ragland.....	Denver
Rankin, Harold Tressler.....	Denver
Raymond, Hubert Nelson.....	Durango
Reeve, Jack Du Vello.....	Pueblo
Richardson, Harmon Coulter.....	Boulder
Richardson, Harold Ward.....	Boulder
Richter, George	Denver
Robinson, Milton Arland.....	Denver
Rogers, Carl Glover.....	Colorado Springs
Rogers, James R.....	Paonia
Rogers, John Irvine.....	Lexington, Kentucky
Ross, Robert Van Guilden.....	Ordway
Rouner, Thomas Jefferson.....	Genoa
Runyan, Howard Joseph.....	Beloit, Kansas
Sabine, Frank Murray.....	Pueblo
Saegart, Ernest Redfield.....	Hartford, Connecticut
Salisbury, Walter Wayne.....	Osawatimie, Kansas
Sands, Gordon Clack.....	Havre, Montana
Saul, Vernon Willard.....	Douglas, Wyoming
Schiller, Carl William.....	Fort Morgan
Schuerman, Lawrence.....	Loveland
Scott, Robert Benjamin.....	Platteville
Seaman, Kermit George.....	Denver
Sherar, Stuart	Rocky Ford
Shoemaker, Frank Marion.....	Denver
Skinner, Webb	Denver
Smetzer, Bernard Obed.....	Denver
Smith, Howard Elmer.....	Denver
Smith, Rex Samuel.....	Glenwood Springs
Smith, William Ervin.....	Denver
Snider, Harold Sherman.....	Arapahoe
Snider, Wade McKinley.....	Abilene, Kansas
Sterne, Charles Shepperd.....	Denver
Stevenson, Harry Band.....	Leadville
Stiles, Frank Luther.....	Boulder
Stilwell, Mortimer Floru, Jr.....	Denver
Stine, Charles Franklin.....	Longmont
Stone, Clarence Arthur.....	Hurley, New Mexico

NAME	RESIDENCE
Storm, Cecil	Boulder
Strange, Orman Morton.....	Steamboat Springs
Sutherland, Ignatius	Denver
Taylor, Albert Lee.....	Florence
Taylor, Eugene Thomas.....	Denver
Thomas, George Henry.....	Denver
Tilden, George Frederick.....	Oberlin, Kansas
Trinnier, J. Thurston.....	Denver
Tucker, James Robert.....	Boulder
Turner, Edgar Percival.....	Greeley
Tyler, William Howard.....	Pueblo
Vidal, Louis Bleus	Denver
Vidal, Numa Fernand, Jr.....	Denver
Vorenberg, Saul	Denver
Walter, Rudolph J., Jr.....	Denver
Waterman, Douglas Raymond.....	Denver
Watson, Maxwell Keyes.....	Casper, Wyoming
Webber, Henry Albert.....	Creede
Weber, Lester Jones.....	Littleton
Welch, Austin Earl.....	St. Louis, Missouri
Welsh, Jasper Howard.....	Goodland, Texas
White, Harvey B.....	Denver
Whiteside, Frederick Kay.....	Denver
Widmayer, Fredrick Charles.....	Denver
Wilch, Gabriel B.....	Denver
Wood, Gerald Cowan.....	Denver
Woods, Robert Glen.....	Montrose
Woolsey, William Warren.....	Bridgeport, Nebraska
Younger, Gilbert O.....	Denver

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SPECIAL STUDENTS

NAME	RESIDENCE
Cart, Ward Beecher.....	Boulder
Dirmeyer, Richard Dudley.....	Boulder
Evans, Graham	Chandler
Larsen, Clarence Chester.....	Boulder
Ryley, Warfield, Jr.....	Longmont
Schnell, Louis John.....	Colorado Springs
State, Constantine N.....	New York City

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VOCATIONAL STUDENTS*

NAME	COURSE	RESIDENCE
Ailman, Walter I.....	Mech. Draft.	Denver
Anderson, Hurlburt	Steam & Stat. Eng.	Bridgeport, Connecticut
Atkinson, Roy George.....	Appl. Elect.	Sunrise, Wyoming
Bass, Harold Lawrence.....	Auto Mech.	Boulder
Bemis, Roy Eugene.....	Appl. Elect.	Broadview, Montana
Bergquist, Arthur Herman.....	Appl. Elect.	Salt Lake City, Utah
Berning, Anthony J.....	Mech. Draft.	Fostoria, Ohio
Boone, Robert	Auto Mech.	Carlisle, Indiana
Brandon, Robert Lee.....	Appl. Elect.	Herrin, Illinois
Brewster, Cecil Joseph.....	Appl. Elect.	Pueblo
Bril, Pantaleon A.....	Auto Mech.	Manila, Philippine Islands
Brown, Charles William.....	Appl. Elect.	Cortez
Buffington, Nathaniel	Mech. Draft.	Boulder
Bugos, George	Appl. Elect.	Homestead, Pennsylvania

* Registered in vocational courses, not of college grade, offered in cooperation with the Federal Board for Vocational Training.

NAME	COURSE	RESIDENCE
Butcher, Fred P.....	Steam & Stat. Eng.	Westport, South Dakota
Connelly, Louis Anthony.....	Appl. Elect.	Denver
Coots, Dewie Oscar.....	Appl. Elect.	Nara Visa, New Mexico
Davis, Cecil R.....	Auto Mech.	Las Animas
Davis, George A.....	Mech. Draft.	Red Lodge, Montana
Desmond, Hugh Clarence.....	Mech. Draft.	St. Louis, Missouri
Dodge, William Horace.....	Auto Mech.	Denver
Domke, George.....	Mech. Draft.	Boulder
Doolittle, Lloyd A.....	Appl. Elect.	Boulder
Dressor, Charles Frank.....	Appl. Elect.	Rocky Ford
Dye, Donald E.....	Mech. Draft.	Dayton, Ohio
Edwards, Calvin Franklin.....	Appl. Elect.	Colorado Springs
Elder, Joseph.....	Appl. Elect.	Boulder
Emigh, Carl Lawrence.....	Appl. Elect.	Salmon, Idaho
Falek, Edwin Oliver.....	Appl. Elect.	Boulder
Friele, Raymond Fairchild.....	Auto Mech.	Boulder
Fugate, Walter F.....	Machine Shop	Water City, Kansas
Gibson, Frederick W.....	Mech. Draft.	Boulder
Gladding, Charles Davenport.....	Mech. Draft.	Philadelphia, Pennsylvania
Griswold, Walter.....	Mech. Draft.	Oswego, New York
Gutierrez, Alphonse.....	Appl. Elect.	Raton, New Mexico
Hale, Harry Gilbert.....	Appl. Elect.	Ft. Sumner, New Mexico
Harman, Ralph E.....	Machine Shop	Denver
Howe, Eugene V.....	Appl. Elect.	Helena, Arkansas
Jansen, Charles Edward.....	Mech. Draft.	Brooklyn, New York
Johnesee, Roy Otho.....	Appl. Elect.	Niantic, Illinois
Johnson, Richard Bergeton.....	Appl. Elect.	Grand Forks, North Dakota
Kamp, Donald Harry.....	Mech. Draft.	Detroit, Michigan
Kelly, John William.....	Appl. Elect.	Ridgeway
Kouns, Andrew Scott.....	Machine Shop	Rocky Ford
Lacik, Michael John.....	Auto Mech.	Denver
Langdon, Albert William.....	Auto Mech.	Denver
Larson, Harry George.....	Appl. Elect.	Salt Lake City, Utah
Law, George C.....	Appl. Elect.	Pueblo
Leahy, Michael Joseph.....	Mech. Draft.	Byron, Michigan
Lewis, Carroll Henry.....	Appl. Elect.	Pasadena, California
Lowe, Alvin B.....	Auto Mech.	Denver
Ludtke, Frederick W.....	Appl. Elect.	Brooklyn, New York
Lunsford, Harvey.....	Appl. Elect.	Darlington, Florida
McClelland, Thomas Edward.....	Appl. Elect.	Denver
McCowan, Charles Henry.....	Auto Mech.	Denver
McCown, Van.....	Appl. Elect.	Boulder
McGhan, Elmer W.....	Appl. Elect.	Eureka, Utah
McGlashen, William Andrew.....	Mech. Draft.	Boulder
Madison, Jesse Charles.....	Appl. Elect.	Limon
Miles, William Carl.....	Appl. Elect.	Longmont
Mitchell, Bertram.....	Auto Mech.	Boulder
Moyle, Edward.....	Appl. Elect.	Alpine, Utah
Murray, John Joseph.....	Appl. Elect.	Chicago, Illinois
Natale, James Peter.....	Appl. Elect.	Denver
Noah, Ira N.....	Auto Mech.	Boulder
Nowlin, Percy.....	Auto Mech.	Jackson, Wyoming
Oczkowski, Constantine Leo.....	Appl. Elect.	Denver
Samson, Alben.....	Appl. Elect.	Calhan
Schmidt, Joseph William.....	Mech. Draft.	Denver
Shelledy, John A.....	Mech. Draft.	Denver
Szczepanik, Stanley.....	Mech. Draft.	East Chicago, Indiana
Terefenko, Alexander.....	Appl. Elect.	Bound-Brook, New Jersey
Thomas, William Erwin.....	Appl. Elect.	Trinidad
Todd, Thomas Vincent.....	Appl. Elect.	Denver
Townsend, Frederick W.....	Auto Mech.	Denver
Trost, Louis Herman.....	Appl. Elect.	Denver
Truesdale, Logan Harry.....	Mech. Draft.	Vevay, Indiana

NAME	COURSE	RESIDENCE
Tucker, Ivan Winford.....	Appl. Elect.	Akron
Westbrook, Thaddeus W.....	Steam & Stat. Eng.	Portsmouth, Virginia
Wilson, David E.....	Appl. Elect.	Denver
Wilson, Herbert Barber.....	Auto Mech.	Canon City
Wolf from, Ray	Appl. Elect.	Indianapolis, Indiana
Worden, Paul Alven.....	Auto Mech.	Kaycee, Wyoming

COLLEGE OF PHARMACY

THIRD YEAR CLASS

NAME	RESIDENCE
Burgess, Charlotte Hollingsworth.....	Boulder
Jaquiss, Hazel Dell.....	Paonia
O'Brien, Faye Frances.....	Dawson, New Mexico
Rosner, David	Boulder
Swisher, Margaret Catherine.....	Hotchkiss
—5	

SECOND YEAR CLASS

NAME	RESIDENCE
Armstrong, Elma Lavenia.....	Grand Junction
Bacon, Estel Elaine.....	Rocky Ford
Bishop, Esther Elmina.....	Golden
Burns, Jeannette Lucille.....	Littleton
Myers, Helen Georgia.....	Alamosa
Simpson, Helen	Fowler
Wood, Armilda Jane.....	Boulder
—7	

FIRST YEAR CLASS

NAME	RESIDENCE
Beckett, Adelia Louisa.....	Lafayette
Bordahl, Gertrude Inga.....	Boulder
Brennan, George Edwin.....	Erie
Brown, Chester E.....	Denver
Curran, John Bellew.....	Pueblo
Foote, Elizabeth Mary.....	Paonia
Fye, Leda	Boulder
Hitchins, Helen Isabell.....	Thatcher
Jones, Carroll Messick.....	Lazear
Kernaghan, Lillian.....	Steamboat Springs
Lewis, Estamae	Boone
McCaughan, Clara Ethel.....	Eldorado, Kansas
McHatton, William James.....	Gypsum
MacFarlane, Irene	Pueblo
Maier, Leonard Ruefly.....	Salida
Norberg, Clarice Evermond.....	New Raymer
Riley, Lyle Valentine.....	Fowler
Rose, Bart William.....	Alamosa
Rose, Jack Roberts.....	Alamosa
Ruckel, Clyde Arthur.....	Greeley
Smith, Margrete K.....	Gary
Staton, Edythe Pearl.....	Marshall, Oklahoma
Wilson, Melchior Harry.....	Denver
Woods, Robert Howard.....	Lamar
Ziegler, R. Kirk.....	Larned, Kansas
—25	

SPECIAL STUDENTS

NAME	RESIDENCE
Burgman, Emily Mae.....	Locke, New York
Gladstone, Isaac Payne.....	Norfolk, Virginia
Schmitt, Fredericka	Boulder
—3	

TRAINING SCHOOL FOR NURSES

FOURTH YEAR CLASS

NAME	RESIDENCE
Barnsley, Geneva A.....	Longmont
Brueshaber, Marguerite P.....	Dayton, Ohio
Colestock, Trilby Ruth.....	Heckla, South Dakota
Cowgill, Josephine	Boulder
Dickey, Gladys	Windsor
Dodson, Francis Willard.....	Ogden, Utah
Grill, Helen	Boulder
Jacobson, Gerda Marie.....	Fowler
Rohwer, Hester Marian.....	Boulder
—9	

THIRD YEAR CLASS

NAME	RESIDENCE
Ford, Ethel	Leonardville, Kansas
Houghton, Ruth Vivian.....	Hackley, Kansas
Hurley, Carrie.....	Case City, Michigan
Johnson, Bertha A. W.....	York, Nebraska
Pla, Maria Amparo.....	Fajardo, Porto Rico
—5	

SECOND YEAR CLASS

NAME	RESIDENCE
Allison, Orpah	Paonia
Stanton, Helen	Boulder
—2	

FIRST YEAR CLASS

NAME	RESIDENCE
Baird, Vera	Laveen, Arizona
Garvin, Helen Louise.....	Boulder
Johnson, Verna Eleanor.....	Boulder
Olson, Milleread Albertina.....	Boulder
Rogers, Jane Clare.....	New Waterford, Ohio
—5	

SUMMER QUARTER STUDENTS, 1919

NAME	RESIDENCE
Abbett, Henry B.	Brighton
Abbott, Agnes Nancy	Childress, Texas
Abbott, Lillian	Childress, Texas
Abel, Louise	Franklin, Louisiana
Adams, Charles Chenault	Boulder
Adams, Frank C.	Boulder
Adams, Wilbur Wolf, A.B.	Boulder
Alexander, Julia Hazel, A.B.	Knobel, Arkansas
Alexander, Rachel	St. Louis, Missouri
Alford, Mary Angeline	Mullinville, Kansas
Aldritt, Clara, A.B.	Glidden, Iowa
Allen, Carrie Marie	Farmington, New Mexico
Allen, Laura Chase, A.B.	Albuquerque, New Mexico
Allen, Yolanda Shaw	Boston, Massachusetts
Allison, Orpah	Paonia
Alworth, Jessie McClever	Council Bluffs, Iowa
Ammon, Nell Marie	Winfield, Kansas
Anderson, Edna	Partridge, Kansas
Anderson, Eugene N.	Boulder
Anderson, Minnie C.	Alta, Iowa
Anthony, Ruth	Ripley, Tennessee
Arbuthnot, Mary Catherine	Belleville, Kansas
Archer, Kate Worthington	Jerome, Idaho
Armstrong, Mabelle Louise	Pittsburgh, Pennsylvania
Arnett, Maisie Margaret	Hobart, Oklahoma
Ashe, Katherine J.	Littleton
Ashley, May Prince	West Helena, Arkansas
Atkeissen, Belle C.	Houston, Texas
Atwell, Maude	Batesville, Mississippi
Augustine, Cecile Ruth	Cedar Rapids, Iowa
Axline, Ivy	Granada
Babcock, May	Albuquerque, New Mexico
Bagley, Louise	Pueblo
Baker, Brenda	Kansas City, Missouri
Baker, Edna	Nelson, Nebraska
Baker, Josie	Miltonville, Kansas
Baker, Kathryne	Hamilton, Texas
Baker, Paul, A.B.	Fort Worth, Texas
Baldrige, Chloe	Fullerton, Nebraska
Ball, Katherine, Ph.B.	Denver
Ball, M. Ethel, A.B., B.E.	Boulder
Ball, Musetta	Osceola, Nebraska
Ballard, Edna	Albion, Iowa
Ballard, Ethel	Albion, Iowa
Bane, William, B.S.	Denver
Barham, Ruth E.	Nacogdoches, Texas
Barham, Virdian, A.B.	Nacogdoches, Texas
Barker, Grace	Kansas City, Missouri
Barlow, Winifred	Santa Fe, New Mexico
Barnard, Bessie	Kansas City, Missouri
Barnes, Carmelita	La Plata, Missouri
Barnes, Irene	San Antonio, Texas
Barnett, Louis P.	Columbia, Missouri
Barr, Everett N.	Liberty, Nebraska
Bartberger, Ethel, A.B.	Merriam, Kansas
Bartels, Freda C.	Chicago, Illinois
Bateman, Bonnie May	Henderson, Texas
Baughman, Ella M.	Boulder

NAME	RESIDENCE
Baylor, Mary Brooks.....	Cotulla, Texas
Becker, Arthur William, Jr.....	St. Louis, Missouri
Beeler, Nellie.....	Denver
Beer, Dee Howard.....	Boulder
Beiler, Ruth.....	Cantonment, Iowa
Bell, Clara Minnie.....	Alta, Iowa
Bemis, Mary E.....	Omaha, Nebraska
Bemiss, Charles Edward.....	Wilsonville, Nebraska
Benner, Gertrude.....	Leavenworth, Kansas
Bennett, Alice.....	Fort Worth, Texas
Bennett, R. Shad.....	Benton, Illinois
Benthack, Walter.....	Chadron, Nebraska
Bentz, Gwendolen Perkins.....	Delhi, Iowa
Berry, Willie Mae.....	Hubbard, Texas
Bigham, Ruth Hoener, Ph.B.....	Denver
Bilderback, Bertha A.....	Carrier, Oklahoma
Bilderback, Iva May.....	Carrier, Oklahoma
Biller, Janet.....	Des Moines, Iowa
Billingslea, Annie Laura.....	Elgin, Texas
Billingslea, Mary Ella.....	Elgin, Texas
Bird, William S.....	Boulder
Bireline, Charles A., B.C.S.....	Kansas City, Missouri
Birnie, Mary.....	Pittsburgh, Pennsylvania
Blackwell, Clara L.....	Mt. Washington, Missouri
Blake, Alice Edith.....	Sioux City, Iowa
Blodgett, Warren M.....	Boulder
Bloes, Anna.....	Lincoln, Illinois
Blom, Max.....	Boulder
Bloom, Marie.....	Chappell, Nebraska
Blosser, Iva Caroline.....	Boulder
Boatright, Ethel.....	Boulder
Bobo, Bess.....	Rhome, Texas
Bockius, Doris E.....	Chicago, Illinois
Boese, Minnie.....	Hillsboro, Kansas
Bolenbaugh, Floy Lucile.....	Enid, Oklahoma
Bolles, Esther Janet.....	Denver
Bolton, Hallie.....	Navasota, Texas
Bonner, Rubie.....	Haynesville, Louisiana
Bonner, Ruth.....	Haynesville, Louisiana
Booth, Fern, B.S.....	Chicago, Illinois
Borden, Neil, A.B.....	Boulder
Borroum, Margaret B.....	Pettus, Texas
Boswell, Fannie J., A.M.....	Boulder
Boswell, Zula.....	Memphis, Tennessee
Bouden, Grace.....	Pratt, Kansas
Bowles, Edith.....	Denton, Texas
Boyd, Frances.....	Iowa Park, Texas
Boyd, Lilly Fay.....	Iowa Park, Texas
Boyd, Mary Lowry.....	Monticello, Arkansas
Boyd, Pearl.....	Iowa Park, Texas
Boyer, Anna.....	Augusta, Kansas
Boylston, DuBose.....	Denver
Bramlett, Evelyn, A.B.....	Corinth, Mississippi
Brand, Ruth Roland, A.B.....	McCondy, Mississippi
Brandenburg, Allene, A.B.....	Dallas, Texas
Branham, Sara Elizabeth, A.B.....	Boulder
Brant, Mary.....	Robinson, Kansas
Breen, Dorothy.....	St. Louis, Missouri
Brennan, Cleo.....	Fort Dodge, Iowa
Brewster, Jennie V.....	Montrose
Brewster, Marguerite.....	Pine Bluff, Arkansas
Brewster, Nan.....	Pine Bluff, Arkansas
Breyfogle, Eva May.....	Boulder

NAME	RESIDENCE
Bridgeman, Richard B.....	Oregon, Missouri
Brock, Ada.....	Winnsboro, Texas
Brock, Cassandra.....	Dallas, Texas
Brock, J. Raymond.....	Kimberly, Idaho
Brody, Fern E.....	Pittsburgh, Pennsylvania
Bromley, Charles D.....	Boulder
Brookes, Jean Ingram, A.B.....	St. Louis, Missouri
Brookes, Katherine Sloan, A.B.....	St. Louis, Missouri
Brown, Bessie C.....	Farmington, New Mexico
Brown, Dora Olivia.....	Norman, Oklahoma
Brown, Euphie.....	Monticello, Arkansas
Brown, Fern.....	Tulsa, Oklahoma
Brown, Gladys W.....	Tulsa, Oklahoma
Brown, Lloyd.....	Iola, Kansas
Brown, Mabel Claire.....	Keokuk, Iowa
Brown, Margaret, A.B.....	Stamps, Arkansas
Browning, Nolan F.....	Wynona, Oklahoma
Brownlee, Ethel R.....	Derby, Kansas
Brubaker, Genevieve Bernice.....	Boulder
Brueshaber, Marguerite.....	Dayton, Ohio
Buchanan, Zora N.....	Havelock, Iowa
Buchheim, Walter August, B.S.....	Leonardville, Kansas
Buckner, Edith E.....	Canadian, Texas
Buie, Helen.....	Boulder
Bullington, Inez.....	Ashdown, Arkansas
Burgess, Dollie D.....	Council Bluffs, Iowa
Burgman, Emily Mae.....	Boulder
Burke, Robert E.....	Boulder
Burke, Thomas G.....	Boulder
Burkholder, Clarence D.....	McPherson, Kansas
Burnett, Julia Irene.....	Colony, Kansas
Burnham, Grace Emma, A.B.....	Boulder
Burright, Nina.....	Anthony, Kansas
Burris, Mary E.....	Bethany, Missouri
Burrow, Maude.....	Byhalia, Mississippi
Burrus, Marie.....	Pleasant Hill, Missouri
Burrus, Ruth.....	Kansas City, Missouri
Burton, Mary.....	Tulsa, Oklahoma
Burton, William T.....	Burnsville, North Carolina
Bush, Mamie.....	Omaha, Nebraska
Buss, H. Irene.....	Colorado Springs
Buster, N. E.....	Fort Worth, Texas
Butler, Florence.....	Elliott, North Carolina
Butler, Zee.....	Bartlesville, Oklahoma
Bynum, Geneva.....	Lelia Lake, Texas
Byram, Margery A.....	Harrisonville, Missouri
Byrd, Minnie.....	Corsicana, Texas
Byrne, Alice.....	St. Joseph, Missouri
Caldwell, Mary.....	Trinidad
Caldwell, Pattie.....	Trinidad
Calhoun, Lola, A.B.....	Dallas, Texas
Calloway, Sallie.....	Fort Worth, Texas
Campbell, Bertha M.....	Spring City, Tennessee
Campbell, Glenn Ernest.....	Boulder
Campbell, Hortense Balderston.....	Wichita, Kansas
Campbell, Lloyd H., A.B.....	Boulder
Campbell, Myrtle.....	Odessa, Missouri
Campbell, Robert J.....	Wichita, Kansas
Campbell, Walter M., A.B.....	Pratt, Kansas
Canty, Lois Christine.....	Logan, Iowa
Carman, Gladys.....	Stoutsville, Missouri
Carmical, Bernice.....	Monticello, Arkansas
Carmical, Edna Boyce.....	Monticello, Arkansas

NAME	RESIDENCE
Carney, Agnes	New Hampton, Iowa
Carr, Clara Maud	Kinsley, Kansas
Carrier, Media K.	Exeter, California
Carson, Jewell	Monticello, Arkansas
Carter, Ethlyn	Slater, Missouri
Carter, Kathryn	St. John, Kansas
Carter, Victoria Lee	Lamonte, Missouri
Cashmore, Claire	Denver
Caswell, Alta	Alma, Nebraska
Cates, Leska Mae	Hubbard, Texas
Catterson, Frehn H.	Tucumcari, New Mexico
Caufield, Kathleen, A.B.	Boulder
Caufield, Lillian	Boulder
Cave, Mary Elizabeth, A.B.	Lexington, Nebraska
Cavitt, Hugh S.	Holland, Texas
Cavitt, Volney	McGregor, Texas
Chambers, Maude	Boulder
Chang, Doo	Shanghai, China
Chao, Yuan Chen	Chen-Ning, Kansu, China
Cheatham, Edna	Ava, Illinois
Chanault, Helen Virginia	Denver
Chiesa, Mark Victor	Boulder
Childers, Crete	Boulder
Chilton, Jack Vaughn	Hannibal, Missouri
Chow, Tse Yue	Golden
Church, Carrie Amelia	Farmersville, Texas
Clapp, Mabel A.	Chicago, Illinois
Clark, Andrew G.	Boulder
Clark, Bertha	Carthage, Missouri
Clark, Ena	Palmyra, Missouri
Clark, Helen Elizabeth	Aspen
Clark, Ruth Augusta	Manhattan, Kansas
Clevenger, Mattie	Excelsior Springs, Missouri
Clifton, Adelia	Oklahoma City, Oklahoma
Clough, Bess May	Arlington, Iowa
Cluphf, Gertrude	Boulder
Clymer, Ruby, A.B.	Emporia, Kansas
Coburn, Bessie Street, B.S.	Meridian, Mississippi
Coburn, Elizabeth A.	Meridian, Mississippi
Cochrane, Carl Robert	Boulder
Cocke, Janet	St. Louis, Missouri
Cocke, Mary E.	St. Louis, Missouri
Cogan, Mary E.	Kansas City, Missouri
Coghlan, Ann Theoline	Kankakee, Illinois
Cohen, Inez Teress	Baltimore, Maryland
Cokerham, Charlie C.	Ardell, Iowa
Colbert, Madaline	Ardmore, Oklahoma
Coleman, Charles Norton	Corpus Christi, Texas
Coleman, Clara E.	St. Louis, Missouri
Coleman, Walter Leslie	Corpus Christi, Texas
Collier, Douglas Ross	Denver
Collings, Sadie	Pecos, Texas
Colquith, Mary Juanita	Wichita Falls, Texas
Compere, Jessie Lyman	Abilene, Texas
Condon, Stuart Harkens	Clarendon, Texas
Cook, Charlotte	Bedford, Indiana
Cook, Mary Frances	Marianna, Arkansas
Cook, Mary Speed	Muskogee, Oklahoma
Conradt, Arthur Vivian	Boulder
Cooper, Jennie Almilda	Helena, Montana
Copeland, George H.	Colorado Springs
Corbet, Edith Virginia	Leona, Kansas
Corcoran, Monica	St. Joseph, Missouri
Cory, Bessie	Tonganoxie, Kansas

NAME	RESIDENCE
Coryell, Earle L.	Lincoln, Nebraska
Cotham, Una	Monte Vista
Cotten, Guyon	Tecumseh, Oklahoma
Cotten, Mittie Josephine	Tecumseh, Oklahoma
Couch, Ruth	Pine Bluff, Arkansas
Couch, Sibyl	Pine Bluff, Arkansas
Cowen, Grace	Haileyville, Oklahoma
Cox, Viola M.	Omaha, Nebraska
Craft, Mabel	Chanute, Kansas
Craig, Elberta Louise	Boulder
Craig, Margaret Viola	Burlington, Iowa
Craig, William Donald	Detroit, Michigan
Crandall, Edith M.	Boulder
Craven, Frances	Indianola, Iowa
Crawford, Cora S.	Beaumont, Texas
Crawford, Dove	Girard, Kansas
Crawford, Ivan C.	Boulder
Crawford, Thelma	Boynton, Oklahoma
Cresswell, Florence	Hillsboro, Iowa
Crihfield, Alva	Geneseo, Kansas
Cruikshank, Mary	Fort Dodge, Iowa
Crisman, Grace	Ordway
Crist, Corita	Mart, Texas
Croft, Marie	Dallas, Texas
Cromer, Lucella	Topeka, Kansas
Crosson, Nannie A.	Oxford, Indiana
Crum, Estelle Burdine	Tallahassee, Florida
Cullen, Eleanor	Grand Junction
Cullen, Nellie M.	Grand Junction
Culph, Margaret	Alton, Missouri
Cunningham, Florence	Beaver City, Nebraska
Cupp, Henry Nathan	Ava, Illinois
Curd, Nell	Childress, Texas
Curtis, Gwendolyn A.	Castle Rock
Cushman, Frances	Dallas, Texas
Cusic, May	Boulder
Custer, Brooks	Boulder
Daggett, Harriett Spiller	Jennings, Louisiana
Dailey, Ada Mary	Council Bluffs, Iowa
Dale, Irene	Denver
Davies, Esther	Huntsville, Missouri
Davis, Carrie Ellen	Independence, Missouri
Davis, Clyde C.	Wharton, Texas
Davis, Harriett B.	Boulder
Davis, Juanita	Wharton, Texas
Davis, Lenora	Ponca City, Oklahoma
Davis, Marjorie Chappell, A.M.	Denver
Davis, Minor Mansfield	Aurora, Missouri
Davison, Hazel Clare	Michigan Valley, Kansas
Dawson, Carolyn	Chickasha, Oklahoma
Day, Alice E., A.B.	Omaha, Nebraska
De Chaumes, Helen Carmen	Houston, Texas
De Chaumes, Hortense A.	Houston, Texas
Decker, Amanda French	McKeesport, Pennsylvania
De Gelder, Gertrude	St. Louis, Missouri
Delahoussaye, Ethel M.	Franklin, Louisiana
De Lay, Florence Grace, A.B.	Parsons, Kansas
De Mars, Stella	Campbell, Nebraska
De Masters, Effie	Richmond, Missouri
De Motte, Oliver	Boulder
Dennison, Alice Emma	Omaha, Nebraska
Denslow, Ruth	Houston, Texas
Dibrell, Florence	Fort Worth, Texas
Dickason, Deane Henry	Denver

NAME	RESIDENCE
Dickey, Gladys, A.B.	Windsor
Dickson, Xema Morton	Richmond, Missouri
Dillingham, Winifred	Blackwell, Oklahoma
Dirickson, Ada R.	Houson, Texas
Dixon, Jennie Sharp	Natchez, Mississippi
Dixon, Judith	Wichita, Kansas
Dobbs, Evelyn E., A.B.	Boulder
Dobkins, Emma	Marysville, Kansas
Doggett, Mabel Elizabeth	Denver
Donaldson, Frances	Fort Washakie, Wyoming
Donnelly, Mary Catherine	Pittsburgh, Pennsylvania
Dorrance, Katherine	Pawnee City, Nebraska
Dougherty, Dola May, A.B.	Long Beach, California
Dougherty, Jewell Edith	Muskogee, Oklahoma
Dougherty, Norma Jo	Muskogee, Oklahoma
Dougherty, Vivian C.	Salida
Douglass, Curran Fletcher	Malta Bend, Missouri
Downing, Richard E.	Denver
Doyle, Mildred	Campbell, Nebraska
Drady, Cecilia	Sioux Falls, South Dakota
Duckworth, Guilford Marvin	Cuero, Texas
Duffy, James Donald	Denver
Dunham, Frances Aileen	Lincoln, Nebraska
Dunham, Leila M.	Lincoln, Nebraska
Dunlop, Josephine N., M.D.	Pueblo
Dunn, Bess Blanche, A.B.	Cresca, Iowa
Dunnavant, Zoe	Little Rock, Arkansas
Dunsmore, Mabel Fredericka, A.B.	Denver
Durand, Jeanne	New Orleans, Louisiana
Durham, Katherine	Pittsburgh, Pennsylvania
Durward, Robert Harland	Boulder
Dwyer, Marjorie	Chickasha, Oklahoma
Dyck, Paul Benjamin	Whitewater, Kansas
Dyer, Cora	Ardmore, Oklahoma
Dysart, Ben Robnett	Columbia, Missouri
Eads, Nellie Benona	Warrensburg, Missouri
Eads, Susan Alois	Tyndall, South Dakota
Easter, Bert Arthur	Van Wert, Iowa
Easter, Lee Elton	Corydon, Iowa
Easter, Vera	Corydon, Iowa
Eastman, Nellie	Matfield Green, Kansas
Eastom, Frank A.	Denver
Eaton, Rea Lincoln	Eaton
Eaves, Elsie	Sterling
Eberhardt, Fannie	Knoxville, Iowa
Ebert, Alice Ladd	Boulder
Eddy, Priscilla	Boulder
Edwards, Castle James	Boulder
Eiglar, Charles O., M.D.	Denver
Eighler, Mabel Maurine	Denver
Elder, Nelle	Proctor, Arkansas
Eller, Leone	Omaha, Nebraska
Ellington, Bertha Florence	Wagoner, Oklahoma
Ellis, Minnie	Kingsdown, Kansas
Elwood, Louie E.	Bouldef
Elwood, Rex B.	Boulder
Emerson, Warren M.	Chicago, Illinois
Emms, Violet R.	Oakley, Kansas
England, Mary	Deepwater, Missouri
English, Jane Inez	Chicago, Illinois
English, Lula Wilson	Ruston, Louisiana
Ephraimson, Alma	Kansas City, Kansas
Evans, Ella Lee	Pilot, Point, Texas
Evans, Emma Evelyn	Liberal, Kansas

NAME	RESIDENCE
Evans, Maynette, B.S.	Houston, Mississippi
Evans, Telline	Iola, Kansas
Ewalt, Frances Floretta, B.S.	Manhattan, Kansas
Eylar, Verda	Kansas City, Missouri
Fagin, Kathryn	Memphis, Tennessee
Fagin, Mary Louise	Memphis, Tennessee
Falls, Mary Leone	Valley Falls, Kansas
Fate, Clara, A.B.	Weeping Water, Nebraska
Faus, Robert Bert	Boulder
Feigel, Katherine	Homewood, Illinois
Fellay, Eillen Marie	Madison, Kansas
Fenton, Constance	Boulder
Ferguson, Alex M.	Stranraer, Canada
Ferguson, Gertrude	Tuskegee, Alabama
Ferguson, Louretta B., A.B.	Tipton, Missouri
Fessenden, Elsie May	Wichita, Kansas
Ficken, Viola Willa, A.M.	Sedalia, Missouri
Fiehler, Bernice	Ottawa, Kansas
Fiehler, Freda	Ottawa, Kansas
Field, Margaret	Burlington, Iowa
Fiester, Esther Lucile	Iowa City, Iowa
Finley, Lillian Maude	Ellendale, North Dakota
Fisse, Edna, A.B.	St. Louis, Missouri
Fisse, Irene	St. Louis, Missouri
Fitch, Mary A.	Omaha, Nebraska
Flamm, Iva Lois	Alamogordo, New Mexico
Flamm, Roy H.	Alamogordo, New Mexico
Flanders, Ruth	Ellsworth, Kansas
Fleming, Marjorie Elizabeth, A.B.	Boulder
Fletcher, Willie	Ruston, Louisiana
Flood, Eva May	Blackwell, Oklahoma
Ford, Myrtle	Longmont
Ford, William, Jr.	Glenwood, Missouri
Ford, William Ward	Houston, Texas
Foster, Embree H.	Boulder
Foster, Harriette E.	Wichita, Kansas
Fowler, Anna M.	Bonner Springs, Kansas
Fowler, Cora Ellen	Grand Junction
Fox, Nellie May	Blue Earth, Minnesota
Fox, Orpha Elizabeth	Fort Dodge, Iowa
Frasch, Lillian M., Ph.B.	Pittsburgh, Pennsylvania
Fravel, Pearl Ida	Chicago, Illinois
Freeman, Cora Nellie	Crosbyton, Texas
Freienmuth, Alma	Tonganoxie, Kansas
French, Bessie N.	Great Bend, Kansas
Fryer, Gordon	Atoka, Oklahoma
Fulmer, Alice Ione	Cherryvale, Kansas
Furlow, Lucy T.	Ashdown, Arkansas
Gahagen, Agnes	Denver
Galloway, John O.	Oklahoma City, Oklahoma
Gardner, Bertha V.	Kingman, Kansas
Georgeson, Nellie R.	Chicago, Illinois
Germany, Edna	Greenville, Texas
Gibbens, William Blair	Parkersbury, West Virginia
Gibbons, Clara Marie	Edgewater
Gibson, Russell	St. Louis, Missouri
Gill, Florence Montgomery, A.B.	Boulder
Gillette, Viola	Chadron, Nebraska
Gilliam, Nollie	Fort Worth, Texas
Gilligan, Anna Carmelia	Pittsburgh, Pennsylvania
Gilpin, Nell	Morgan, Texas
Ginther, Sarah Beverly	Boulder
Glassbrook, Eva Agnes Stella	Boulder
Glen, Zelma	Tulsa, Oklahoma

NAME	RESIDENCE
Glendinning, Don K.	Denver
Glessner, Kate	Topeka, Kansas
Goff, Cicely Sarah	Austin, Texas
Gooch, Attie Wood	Palestine, Texas
Goodson, Eunice	Carrollton, Missouri
Gordon, Geneva Ann	Ada, Oklahoma
Gordon, Marguerite	Sand Springs, Oklahoma
Gorman, Shirley Ashbrook	Jerome, Idaho
Gower, Rena	Romona, Oklahoma
Grace, Mamie M.	Mitchell, South Dakota
Grady, Hugh Sloan, A.B.	Dallas, Texas
Gragg, Edith Kathryn	Tulsa, Oklahoma
Gragg, Nina	Tulsa, Oklahoma
Graham, Jean	Ottawa, Kansas
Granberry, Howard Baldwin, Jr.	Austin, Texas
Grauman, Lillie	Louisville, Kentucky
Graves, Faye	Ferris, Texas
Graves, Lillian, A.B.	Arkadelphia, Arkansas
Gray, Herpalice	Raymore, Missouri
Gray, Jessie	Oklahoma City, Oklahoma
Green, Alfred Salem	Kansas City, Missouri
Green, Jessie	Floydada, Texas
Green, Kathryn E.	Kansas City, Missouri
Green, Louis	Denver
Green, Martha	Hutchinson, Kansas
Greene, Adelaide	Joplin, Missouri
Greene, Charles Arthur, Ph.B.	Webb City, Missouri
Greer, Grace	Morrilton, Arkansas
Greer, Robert S.	Oklahoma City, Oklahoma
Griffith, Jessie L.	Kansas City, Missouri
Griffith, Kean	Delta
Grill, Helen, A.B.	Boulder
Grimes, Jewell	Huntsville, Missouri
Grimes, Nell	Huntsville, Missouri
Grundy, Harry Bates	Taylorville, Illinois
Gruver, Margaret Ella	Monte Vista
Guiney, Ellen Marie	Chicago, Illinois
Guinn, Emma J. V.	Fort Worth, Texas
Guyton, Lucy Attersall	Hohen Solms, Louisiana
Habermann, Caroline L.	Rico
Hackett, Bess	Chilton, Texas
Hagaman, Ruth	Ranger, Texas
Haines, Daisy	Rapid City, South Dakota
Haines, Gladys K.	Boulder
Hale, Ernest Thomas	Cambria, Wyoming
Hall, Carrie	Dodge City, Kansas
Hall, Grace M.	Dodge City, Kansas
Hall, Lillian Mae	Stanberry, Missouri
Hall, Marguerite	Boulder
Hall, Mary Stella, A.B.	Boulder
Halsted, F. S., M.D.	Denver
Hamer, Elizabeth	Alma, Arkansas
Hamilton, Imo	Partridge, Kansas
Hamilton, Robert Fox	Denver
Hammons, Jewell Nan	Konowa, Oklahoma
Hanna, Annie Willson	Shreveport, Louisiana
Hansen, Pearl	Goodrich
Hardin, Jackie	Tecumseh, Oklahoma
Hardy, Gertrude	Monticello, Arkansas
Harger, George R.	Boulder
Hargett, Anderson J., A.M.	East Enid, Oklahoma
Hargett, Clara B.	Enid, Oklahoma
Harlan, Arda	Clarinda, Iowa

NAME	RESIDENCE
Harrelson, Sarah.....	Belton, Missouri
Harrington, Ruth	Boulder
Harris, Vida Agnes.....	Manhattan, Kansas
Hartley, Gertrude Letitia.....	Cordell, Oklahoma
Hartley, Grace M.....	Louisville
Hartmann, Alexis Frank.....	St. Louis, Missouri
Harvey, Edward Lee.....	Boulder
Harwood, Sallie.....	Raymore, Missouri
Hattenhauer, Roberta.....	Council Bluffs, Iowa
Hawkins, Hazel.....	Pittsburgh, Pennsylvania
Hawn, Josephine.....	Chickasha, Oklahoma
Haynes, Hazel.....	Simsboro, Louisiana
Haynes, Robert C.....	California, Missouri
Haynes, Ruth H.....	California, Missouri
Heady, Laura Myrtle.....	Kearney, Missouri
Heady, Nannie Alice.....	Kearney, Missouri
Heard, Agnes.....	Crowley, Louisiana
Hearin, Anne Kathleen.....	Arkadelphia, Arkansas
Hearn, Erma.....	St. John, Kansas
Heath, Ida May.....	Sand Springs, Oklahoma
Heathershaw, Mae.....	Des Moines, Iowa
Heathman, Lucy.....	Lawrence, Kansas
Heatley, Lucile Virginia.....	Breckenridge, Texas
Helbig, Emily Mai.....	St. Louis, Missouri
Helman, John Phillip.....	Lamar
Hendrix, Verda J.....	Wetmore, Kansas
Henney, Helene Angela.....	Horton, Kansas
Henry, Beryl.....	Bentonville, Arkansas
Henry, Kate.....	Monroe, Louisiana
Henry, Minnie.....	West Monroe, Louisiana
Henry, Robert William.....	Delaware, Oklahoma
Hepworth, Clair H., A.B.....	Topeka, Kansas
Herman, Harry Henry.....	Boulder
Herzer, Minnie	Boulder
Hesnard, Tillie.....	Hermosa, South Dakota
Hester, Adah H.....	Franklin, Nebraska
Heubner, Bernhard Phillip.....	Victor
Hewitt, Maud	Boulder
Hewlett, Fred Albert.....	Erie
Hiatt, May Farr.....	Kansas City, Missouri
Hibben, Ethel.....	Norfolk, Nebraska
Hickey, Frank Meredith.....	Denver
Higginbotham, Rufus W.....	Dallas, Texas
Hill, Alma Lucile.....	Memphis, Tennessee
Hill, Ralph Marcus Douglas.....	Albuquerque, New Mexico
Himpel, Minnie.....	Tonganoxie, Kansas
Hindman, Annie.....	Kansas City, Missouri
Hinkley, Henry Lawrence.....	Sterling
Hinman, Mabel Anna.....	Denver
Hinshaw, Jessie.....	Beaver City, Nebraska
Hoag, Frances R.....	Strawberry Point, Iowa
Hobbs, Elaine.....	Burlington, Iowa
Hobbs, Lucy Edith.....	Manson, Iowa
Hobson, Pauline.....	Kingman, Kansas
Hodgson, Elizabeth, A.B., A.M.....	Wichita, Kansas
Holland, Elizabeth.....	Era, Texas
Holland, Mary Louise.....	Stillwell, Oklahoma
Holland, Wilna.....	Madill, Oklahoma
Hollenberger, Mabel Bernice.....	Western, Nebraska
Holley, Beatrice.....	Stigler, Oklahoma
Holmes, Carolyn La Visa.....	Ashdown, Arkansas
Holmes, Gertrude.....	Omaha, Nebraska
Holmes, Robert Edgar, A.B.....	Rochester, New York

NAME	RESIDENCE
Holmes, Stella	Omaha, Nebraska
Holstein, Elsie M.	Burlington, Iowa
Holt, Mabel Anne	Salt Lake City, Utah
Hoover, Borden P.	Denver
Horn, Gertrude Kesire	Keokuk, Iowa
Hosic, Alma	Kearney, Nebraska
Hostick, Lora	Lebo, Kansas
Hotton, Pauline	Dodge City, Kansas
House, Lester Roswell	Boulder
House, Mary Grace	Omaha, Nebraska
Houston, Alma	Nacogdoches, Texas
Houston, Emma	Abilene, Texas
Howard, Jessie L., A.B.	Boulder
Howard, Martha Beiler	Chilocco, Oklahoma
Howe, Helen Miller	Omaha, Nebraska
Howe, William Warren, A.B.	Pueblo
Hower, Jessie	Haileyville, Oklahoma
Hoyt, Vera	Enid, Oklahoma
Hubbard, Julia	Denver
Hubbard, Marguerite	Boulder
Hudson, Newell	Goodnight, Texas
Hughes, Sarah Ellen	Boulder
Hull, Mabel Mercedes	Tulsa, Oklahoma
Hund, Minnie O.	Wetmore, Kansas
Hunter, Anna E.	Monticello, Arkansas
Hunter, Edward Lee	Wolfe City, Texas
Hunter, Jennie Elliott	Wolfe City, Texas
Hunter, Mabel, B.S.	Manhattan, Kansas
Huston, Hazel	Windsor, Missouri
Huston, Vera	Pittsburg, Kansas
Hutchinson, Charles Angevine, A.B., A.M.	Boulder
Hutchison, Goldie	Burr Oak, Kansas
Hyer, Margaret	Dallas, Texas
Inglis, Clara Grover, A.B.	Boulder
Inglis, Janie	Hale, Iowa
Ireland, Gail L.	Hudson
Isaac, Helena L., A.B.	Moundridge, Kansas
Isom, Lorena	San Antonio, Texas
Iverson, Conrad Marcellus	Longmont
Ivey, Roxie	Floydada, Texas
Jackson, Anne Elizabeth	Miami, Texas
Jackson, E. Barbee	Bartlesville, Oklahoma
Jackson, Sam Broadus	Denver
James, Edith Merle	Krebs, Oklahoma
James, Retta	Springfield, Missouri
Jamieson, Elsie Isabella	Bridgeport, Connecticut
Jarman, Mary Ida	Monticello, Iowa
Jarrell, A. J., Jr.	Temple, Texas
Jenkins, Winnie	Hubbard, Texas
Jenne, Nannie	Boulder
Jennings, Frank A.	Boulder
Jennings, Irene	Girard, Kansas
Jennings, Olive L.	Ellsworth, Kansas
Jennings, Winifred	Claremore, Oklahoma
Jensen, Anne	Manitou
Jewett, John Quincy	Denver
Johns, Mary Fleanor	Pittsburgh, Pennsylvania
Johnson, Alan H.	Denver
Johnson, Fdna Gabrielle	Raton, New Mexico
Johnson, Irene Agnes	Sioux City, Iowa
Johnson, Ledra	Boulder
Johnson, Leila	Sloan, Iowa
Johnson, Lester B.	Durango

NAME	RESIDENCE
Johnson, Mary Isora.....	Vernon, Texas
Johnson, Ola.....	Commerce, Texas
Johnson, Ruby.....	Hollis, Oklahoma
Johnson, Ruth Elma.....	Grand Island, Nebraska
Johnson, Ruth Esther.....	Sioux City, Iowa
Johnston, Edna.....	Philadelphia, Pennsylvania
Johnston, Ruth.....	Idaho Springs
Jolley, Annie.....	Boulder
Jones, Alta M.....	Alamosa
Jones, Bernice L.....	Goodrich
Jones, Doris Goodrich.....	Temple, Texas
Jones, Frances Margaret.....	Boulder
Jones, Laura Mercer.....	Neodesha, Kansas
Jones, Laura T.....	Tuskegee, Alabama
Jones, Leona.....	Forney, Texas
Jones, Lura.....	Amarillo, Texas
Jones, Mabel Gwendolyn.....	Erie
Jones, Natalie.....	Austin, Texas
Jordan, Ina.....	Plainview, Texas
Justice, Ethel.....	Tulsa, Oklahoma
Kanaga, Elizabeth.....	Kansas City, Missouri
Karr, Eloise.....	Indianola, Iowa
Keeler, Harry.....	Longmont
Keen, Frances Ford.....	Pueblo
Kehr, Mabel Griselda.....	Carthage, Missouri
Kehr, Wilmena Helen.....	Carthage, Missouri
Keim, Marie.....	Boulder
Kell, Esther Mary.....	Montrose
Kelley, Marguerite.....	Boulder
Kellogg, Gladys Jo.....	Guthrie, Oklahoma
Kelly, Minnie Pearl.....	Farmington, New Mexico
Kemp, Philip Claris.....	Denver
Kemper, Jessie.....	Hallsville, Missouri
Kemper, Rena.....	Hallsville, Missouri
Kennedy, Lettice R.....	Muscataine, Iowa
Kennedy, Ruth.....	Girard, Kansas
Kidd, Grace.....	Princeton, Indiana
Kidd, Jimetta.....	Santa Fe, New Mexico
Kilpatrick, Sydney Margery.....	Alexandria, Louisiana
Kimball, Miriam.....	Hartington, Nebraska
King, Ray.....	Fort Worth, Texas
King, Roberta.....	Waxahachie, Texas
King, Ruth Marie.....	Lincoln, Kansas
King, Sue.....	Fort Worth, Texas
Kinney, Bessie.....	Campbell, Nebraska
Kirby, Edith.....	Oklahoma City, Oklahoma
Kirk, Ada M.....	Abilene, Texas
Kirksey, Addie Belle.....	Ralles, Texas
Klaholz, Anna E.....	Pittsburgh, Pennsylvania
Klamm, Lyddia E.....	Parkville, Missouri
Klinger, Marion, A.B.....	Boulder
Klinkenberg, Louise.....	Tonganoxie, Kansas
Klinkenberg, Pauline.....	Ordway
Knease, Tacie Mary, A.B.....	Iowa City, Iowa
Knight, Belle R.....	Hinsdale, Illinois
Knight, Glendora.....	Hinsdale, Illinois
Knoblock, Nannie M.....	Pittsburgh, Pennsylvania
Knode, Edna M.....	Wichita, Kansas
Knowles, Samuel Entyre.....	Boulder
Knutzen, Julia.....	Kearney, Nebraska
Kochevar, Matthew John.....	Crested Butte
Kollme, Sidney P.....	St. Louis, Missouri
Kretschmar, George Gustav.....	Greeley

NAME	RESIDENCE
Kretsinger, Violet.....	Emporia, Kansas
Labbo, Frances.....	Grover
Lackey, Kate.....	Lawrenceville, Illinois
Lair, Mary.....	Oklahoma City, Oklahoma
Lallie, Anthony S.....	Louisville
Lambert, Grace.....	Dallas, Texas
Langenberg, Emma D.....	St. Louis, Missouri
Langley, Lida Mary.....	Madill, Oklahoma
Langworthy, Florence Elmina.....	Pittsburgh, Pennsylvania
Larsen, Clarence C.....	Boulder
Larsen, Pearl.....	Minden, Nebraska
Larson, Albertine M. E.....	Minneapolis, Minnesota
La Rue, Marion.....	Tulsa, Oklahoma
Latimer, Lydia Mae.....	Meridian, Texas
Lee, John Adam.....	Denver
Leisenring, Jennie H.....	Lansing, Michigan
Leitsbach, Ona.....	Humboldt, Kansas
Leonard, Harriett.....	Dallas, Texas
Leslie, Monzyee.....	Nickerson, Kansas
Lester, Drane.....	Batesville, Mississippi
Lester, Katherine.....	Boulder
Lester, Oliver C., Jr.....	Boulder
Levin, Mollie.....	Chicago, Illinois
Lewin, Constance.....	Lindsberg, Kansas
Lewis, Frances Ardena.....	Tulsa, Oklahoma
Lewis, Jessie Elizabeth.....	Beaver City, Nebraska
Lewis, Juanita.....	Garrison, Texas
Lewis, Pearl.....	Kingston, Oklahoma
Lide, Anne Ayres.....	Chapel Hill, Texas
Lightner, Verna Elaine.....	Mound City, Kansas
Lilienstern, Aileen.....	Mt. Pleasant, Texas
Lillard, Kathryn.....	Temple, Texas
Lind, Raymond W.....	Boulder
Lindberg, Eugene Theodore.....	Pueblo
Livesay, Linda Rose.....	Parsons, Kansas
Livingston, Anna W.....	Kansas City, Missouri
Livingston, Mabel.....	Vernon, Texas
Logsdon, Mayme Irwin.....	Elizabethtown, Kentucky
Lomas, Cora A.....	Dallas, Texas
Long, Marietta Susan.....	Williamsburg, Iowa
Loveall, Hester Elinor, A.B.....	Kansas City, Missouri
Loveless, Inez Margaret.....	Emporia, Kansas
Lowe, Edna B.....	Tulsa, Oklahoma
Lowe, Helen.....	Kingman, Kansas
Lowe, Jessie Hamilton.....	Kingman, Kansas
Lucius, Theresa.....	Negreet, Louisiana
Luethje, Alvina.....	Santa Fe, New Mexico
Luman, Adah F.....	Altamont, Kansas
Lynch, Enid Sadie.....	Dawson, New Mexico
McAllister, Dorothy.....	Albuquerque, New Mexico
McCaskey, M. Maude.....	Skedee, Oklahoma
McCauley, Elizabeth Shaffer.....	Chicago, Illinois
McClellan, Mary Lorena.....	Glasco, Kansas
McClelland, Ada A.....	Des Moines, Iowa
McComb, Mabel.....	Wichita, Kansas
McConaughay, Maude.....	St. John, Kansas
McCormac, Alice.....	Boulder
McCormac, Louise.....	Boulder
McCormick, Jessie.....	Marshall, Missouri
McCoy, Florence A.....	Kansas City, Kansas
McCoy, Linda.....	Colorado Springs
McCredmond, Margaret Mary.....	Silver City, New Mexico
McCune, Laura Persis.....	Denver

NAME	RESIDENCE
McCuskey, Mabel	Boulder
McDaniel, Elizabeth Skidmore	Checotah, Oklahoma
McElhany, Margaret M.	Omaha, Nebraska
McFerren, Della	Kansas City, Missouri
McGill, Beverly	Vernon, Texas
McGrath, Ellert Lewis	Berkeley, California
McGwire, Olive Josephine	Omaha, Nebraska
McHatton, Stanley	Gypsum
McHenry, Pearle I.	Paola, Kansas
McKay, Elizabeth G.	Boulder
McKee, Captain William	Ottawa, Kansas
McKee, Lena	Austin, Texas
McKibben, Fern	Pratt, Kansas
McKittrich, Clara	Cedar Falls, Iowa
McKnight, Martha	Corinth, Mississippi
McKnight, Roberta	Temple, Texas
McLaughlin, Caroline	Boulder
McLean, Helen	Wichita, Kansas
McLeod, Eva Markland	Tulsa, Oklahoma
McLeod, John A.	Tulsa, Oklahoma
McLucas, Mary McRae	Boulder
McMehen, Elizabeth	Denver
McMillon, Nora	Canyon, Texas
McNair, Jeannette	Boulder
McNeill, Bernice	Tulsa, Oklahoma
MacArthur, Eunice S.	Atoka, Oklahoma
MacIntyre, Wallace Jeffrey	Florence
MacKay, William H.	Denver
Mackie, Ellen	Boulder
MacLean, Mae	Boulder
Maddox, Edna B.	Chickasha, Oklahoma
Malbot, John Henry	Boulder
Malony, Will N.	Red Oak, Iowa
Malter, Esta Elizabeth	Malta Bend, Missouri
Mandeville, Maybelle	Chicago, Illinois
Mann, Leslie	Liberty, Missouri
Marshall, Frank H.	Enid, Oklahoma
Marshall, Mary Opal	Tulsa, Oklahoma
Marshall, Zaida	Dewey, Oklahoma
Martin, Jessie	Coleman, Texas
Mason, Hazel M.	Boulder
Mason, Marian	Boulder
Mason, Myrtle	Tulsa, Oklahoma
Matthews, Donald Edgar	Freeman, Missouri
Matthews, Esther Florence	Freeman, Missouri
Matthews, Martha	Bowling Green, Missouri
Mauntel, C. Ivan	Alva, Oklahoma
Mauntel, Grace Elizabeth	Alva, Oklahoma
May, Elva Maura	Akron
May, Jennie Searcy	Memphis, Tennessee
Mayall, James Tully	Boulder
Mayes, Pearle	Pryor, Oklahoma
Mayland, Dorothy	Boulder
Maynard, Donald E.	Chicago, Illinois
Mead, Gladys C.	Denver
Mead, Jessie B.	Spencer, Indiana
Meeks, Hazel	Kansas City, Kansas
Meierer, Lena C.	Lexington, Missouri
Mendenhall, Marion	Montrose
Merillat, Grace	Ordway
Mesmer, Mary Helen	Vermillion, Kansas
Middleton, Nannie Augusta	Tulsa, Oklahoma
Milam, Grace	Memphis, Texas

NAME	RESIDENCE
Amam, Maude.....	Memphis, Texas
Amlendenstein, Grace.....	Denver
Ailes, Ruth.....	Martinsville, Indiana
Amilan, Barbara.....	King City, Missouri
Miller, Alta.....	Muskogee, Oklahoma
Miller, Arthur Henry.....	Boulder
Miller, Callie Urena.....	Valley View, Texas
Miller, Charles Marvin.....	Altamont, Kansas
Miller, Cora E.....	Mendota, Illinois
Miller, Etta Pearl.....	Blockton, Iowa
Miller, Mabel G.....	Boulder
Mills, Jennie Belle.....	Norfolk, Nebraska
Mills, Lucy M.....	St. Louis, Missouri
Minear, Gladys Juanita.....	Oskaloosa, Iowa
Mitchel, Claire.....	Cripple Creek
Mitchell, Roger Q.....	Sterling
Montgomery, Ada B.....	Fairfield, Iowa
Moore, Clara.....	Tulsa, Oklahoma
Moore, Dorothy.....	White Plains, New York
Moore, Eugenia Mahala.....	Oak, Nebraska
Moore, Lillian.....	Tulsa, Oklahoma
Morgan, L. Mary, M.D.....	Boulder
Morning, Elizabeth.....	Denver
Morris, Clara.....	Marion, Kansas
Morris, Mary E.....	Denver
Morrison, Grace.....	Des Moines, Iowa
Morrow, Gordon.....	West Plains, Missouri
Moss, Alice.....	Kansas City, Missouri
Moss, Moneta.....	Denver
Mott, Ethel B.....	Kansas City, Missouri
Mount, Glenna Elizabeth.....	Enid, Oklahoma
Mountcastle, Grace.....	Stillwater, Oklahoma
Moyers, Millie.....	Blackwell, Oklahoma
Mulligan, Agnes Josephine.....	Chicago, Illinois
Mulligan, Anna Theresa.....	Chicago, Illinois
Mulligan, Hannah Agnes.....	Chicago, Illinois
Murphy, Gertrude.....	Pine Bluff, Arkansas
Murphy, Margaret.....	West Monroe, Louisiana
Murphy, Mildred K.....	Boulder
Meyer, Erskine.....	Boulder
Myers, Nellie Ethel.....	Boone, Iowa
Naron, Rena.....	Checotah, Oklahoma
Nass, Martha.....	Ord, Nebraska
Neal, Joan.....	Udell, Texas
Neal, Livonia.....	Chickasha, Oklahoma
Neil, Emma.....	Kansas City, Missouri
Neil, La Verne.....	Boulder
Nelson, Bella M., B.S.....	Jewell, Kansas
Nelson, Eli.....	Denver
Nelson, Emma Caroline, A.B.....	Fort Dodge, Iowa
Nelson, George R.....	Denver
Nelson, Minnie Belle, B.L.....	St. Joseph, Missouri
Nelson, Sam.....	Denver
Newell, Blanche.....	Fort Collins
Newkirk, Sallie.....	Tipton, Missouri
Newman, Pearl.....	Cordell, Oklahoma
Newman, Ruby Floy.....	Union Church, Mississippi
Nichols, Alan, A.B.....	Iowa Falls, Iowa
Nikkel, Kate.....	Oklahoma City, Oklahoma
Noe, Flora.....	Wetmore, Kansas
Nord, Arthur W.....	Boulder
Norris, Fred L.....	Boulder
Norris, Gertrude E., A.B.....	La Salle

NAME	RESIDENCE
Norton, Leonard S.	Aurora
Norton, Pearl Lula.	Omaha, Nebraska
Norton, William Hudson, A.B.	Troy, Missouri
Nunn, Gladys.	Monticello, Arkansas
Nunn, Lily.	Monticello, Arkansas
Oakes, C. Hermon.	Marquette, Kansas
Obee, Isabel.	Hutchinson, Kansas
Obee, Phyllis.	Hutchinson, Kansas
O'Brien, Ida.	Denver
O'Brien, Margaret Gertrude.	Rockford, Illinois
O'Connell, Mary Eleanor.	Salina, Kansas
O'Donnell, John Edgar.	Denver
Ogden, Edna Mary.	Williamsburg, Iowa
Oglesbury, Mattie Ellen, A.B.	Denver
O'Malia, Regina Catherine.	Boulder
O'Malley, Mary J.	Chicago, Illinois
O'Niell, Lorena.	Franklin, Louisiana
Orr, Ira B., B.S.	Oxford, Mississippi
Orr, Lillian G.	Sioux City, Iowa
Orth, Florence Gertrude.	Clarinda, Iowa
Oshorn, Elor.	Austin, Texas
Owen, Anna Louise.	Mt. Ayr, Iowa
Owen, Doris.	Springfield, Missouri
Owen, Mabel.	Mt. Pleasant, Iowa
Owen, Martha Isabel, A.B.	Mt. Ayr, Iowa
Padgett, Ada Mae.	Galt, Missouri
Pagenstecher, Clara, A.B.	Dayton, Ohio
Parker, Gladys.	Atchison, Kansas
Parker, Lulu.	Fort Worth, Texas
Parker, Myrtle Belle.	Boulder
Parker, Ruth.	Salina, Kansas
Parks, Clara Dell, A.B.	St. Louis, Missouri
Parks, James Marshall.	Logan, New Mexico
Parks, Nera Cawthon.	Logan, New Mexico
Parminster, Earl Everett.	Bethany, Nebraska
Parr, Ruth.	Dublin, Texas
Pate, Clarence Hugh.	Walnut, Kansas
Pate, Ethel Mary.	Walnut, Kansas
Patterson, Gertrude.	Guthrie, Oklahoma
Patton, Genevieve.	Boulder
Patton, Lelia.	Hereford, Texas
Patton, Pauline E.	Tulsa, Oklahoma
Patrick, John H.	Higbee, Missouri
Paugh, Muriel M.	Fort Scott, Kansas
Peek, Lucile.	Mt. Washington, Missouri
Pears, Katherine E.	Boulder
Pegg, Anna Kurtz.	Greenville, Missouri
Perkins, Mayme Shannon.	New Wilson, Oklahoma
Perley, Elinor Inez, B.S.	Moberly, Missouri
Perley, Mary Deane, B.S.	Moberly, Missouri
Peterman, Frances.	Franklin, Louisiana
Peters, Juanita.	Muskogee, Oklahoma
Peters, Thelma F.	Muskogee, Oklahoma
Phares, Mary L.	Colo., Iowa
Phelps, Agnes.	Littleton
Phelps, Kittie.	Olathe, Kansas
Phillips, Esther Marye.	Perry, Missouri
Phillips, Paulyne.	Perry, Missouri
Phinney, Isabelle Hortense.	Rockford, Illinois
Pickett, Bethsue.	Kansas City, Missouri
Pickett, Harriet Lorine.	Kansas City, Missouri
Fing, Jessie.	Sylvia, Kansas
Pinsky, Joseph.	Denver

NAME	RESIDENCE
Pitkin, Amy	Denver
Pollard, Rowena Athelia.....	Nehawka, Nebraska
Pollock, Hannah Frances.....	Burlington, Iowa
Pollock, Jennie E.....	Fort Dodge, Iowa
Pomeroy, Mary	Salina, Kansas
Pope, Blanche Emily.....	Red Cloud, Nebraska
Pope, Hazel.....	Wynona, Oklahoma
Pope, Mabel Maude.....	Red Cloud, Nebraska
Porter, Edna.....	Waelder, Texas
Porter, Less.....	Waelder, Texas
Potter, Evelyn Marie.....	Boulder
Powell, Emily.....	Nowata, Oklahoma
Powers, Luella F.....	Sterling, Illinois
Presley, Carolyn Mae.....	Tulsa, Oklahoma
Pressley, Elizabeth.....	Des Moines, Iowa
Prey, Du Val	Denver
Price, Priscilla P.....	St. Louis, Missouri
Pruett, Helen.....	Ponca City, Oklahoma
Purinton, Roy	Bailey
Purmort, Eunice Beryl.....	Boulder
Quigley, Ruth W.....	Tipton, Missouri
Quigley, Sara.....	Tipton, Missouri
Ragsdale, Sue.....	Victoria, Texas
Raines, Mary Edith.....	Minneapolis, Minnesota
Rainey, Lillian.....	Oklahoma City, Oklahoma
Rainey, Robert M.....	Oklahoma City, Oklahoma
Ramey, Maria E.....	Chicago, Illinois
Ramey, Mildred M.....	Chicago, Illinois
Ranck, Mabel A.....	Gage, Oklahoma
Randles, Anna E.....	Kansas City, Kansas
Rank, Hilda.....	Pond Creek, Oklahoma
Rank, Lydia.....	Pond Creek, Oklahoma
Rank, Mary Louise.....	Pond Creek, Oklahoma
Rank, Mollie F.....	Boulder
Rankin, Rosemary.....	Topeka, Kansas
Ray, May Rosa.....	Dallas, Texas
Ray, Sadie.....	Tulsa, Oklahoma
Rea, Daltis.....	Floydada, Texas
Read, Margaret Williams.....	Boulder
Reardon, Mary	St. Joseph, Missouri
Rebman, Gail.....	Frederick, Illinois
Reece, A. Louise.....	Socorro, New Mexico
Reece, Richard Herb.....	Socorro, New Mexico
Reed, Consuello	Boulder
Reed, Elsie Edith.....	Boulder
Reed, Russell M.....	Boulder
Reedy, Rachel R.....	Boulder
Regier, Emil.....	Moundridge, Kansas
Regier, Peter Karl.....	Moundridge, Kansas
Reiber, Willow Belle.....	Emporia, Kansas
Reid, Agnes Viola.....	Atlantic, Iowa
Reinertsen, Stephanus Gustavus.....	Alta, Iowa
Reitz, Carrie Jean.....	Chicago, Illinois
Render, Katherine Merle.....	Hamilton, Missouri
Rendle, James A.....	Denver
Reynolds, Louise Decker.....	Boulder
Rhone, Laura Catherine.....	Grand Junction
Richardson, Elizabeth Scott.....	Boulder
Richardson, Lillie.....	Eldorado, Texas
Richardson, Tenny.....	Eldorado, Texas
Ridgeway, Arthur	Boulder
Robbins, Ruth.....	Reagan, Texas
Roberson, Jessie W.....	Boulder

NAME	RESIDENCE
Roberts, Doris	Denver
Roberts, Irene Lydia.....	Stilwell, Oklahoma
Roberts, Louise Antoinette.....	Chicago, Illinois
Roberts, Ray Clayton.....	Boulder
Roberts, Thelma Marie.....	Fruita
Robertson, Bessie M.....	Chicago, Illinois
Robinson, Clarence.....	San Acacio
Robinson, Georgie.....	Hallsville, Missouri
Rogers, Blanche.....	Kansas City, Missouri
Rogers, Harry B.....	Chicago, Illinois
Ronald, William.....	Daytona, Florida
Ronne, Elizabeth Broas.....	Tulsa, Oklahoma
Rook, Elizabeth	Denver
Rose, Ethel May.....	Humboldt, Kansas
Rosebrough, Augusta S.....	St. Louis, Missouri
Rothhammer, Jessica.....	Tulsa, Oklahoma
Rothrock, Beatrice.....	Stoneham
Rothwell, William David.....	Denver
Roulston, Jessie	Boulder
Rourke, Anna B.....	Kansas City, Missouri
Royce, Lourie	Boulder
Rush, John L.....	Denver
Rutledge, Grace D.....	Valley Center, Kansas
Salter, Marjorie Moutrie.....	Oakhill, Kansas
Sanders, Bertha.....	Monroe, Louisiana
Sanders, Ethel.....	Cincinnati, Ohio
Sandy, Jennie Oscar.....	Maryville, Kansas
Sangster, Charlton.....	Marshall, Texas
Sappington, Marjorie.....	Slater, Missouri
Savage, Elfie.....	Floydada, Texas
Sawhill, John A.....	Boulder
Sawin, Pearl.....	Wichita, Kansas
Sawyer, M. Eldora.....	Denver
Scales, Martha.....	Calvin, Oklahoma
Scales, Opal A.....	Calvin, Oklahoma
Schenck, Ella S.....	Morenci, Arizona
Schmidt, Andrew B.....	Newton, Kansas
Schmidt, Josephine	Kearney, Missouri
Schooler, Alice.....	Des Moines, Iowa
Schultz, Clarence Frederick.....	Woodbine, Kansas
Scott, Ethel.....	Abilene, Texas
Scudder, Felix	Denver
Seaber, Ivy C.....	Jefferson City, Missouri
Seachrest, Helen.....	Kansas City, Missouri
Searson, Maud.....	Omaha, Nebraska
Seawell, C. Ruth.....	Greenville, Illinois
Seely, Marie W.....	Boulder
Sethman, Harvey Thurston.....	Denver
Shafer, Mary E.....	Bartlesville, Oklahoma
Shaffer, Helen Gertrude.....	Perrysville, Pennsylvania
Shapiro, Isadore	Denver
Shattuck, Doris	Preston, Minnesota
Shattuck, Henrietta	Boulder
Shaver, Helen Margaret.....	Ottawa, Kansas
Shaw, Earle Lionel.....	Denver
Shaw, Jessie.....	Campbell Hill, Illinois
Shaw, Mary Margaret.....	Wichita, Kansas
Shontz, Emma.....	Kansas City, Missouri
Shufelt, Harlan J.....	Pueblo
Sickman, Darrell	Denver
Simmons, Catherine Ella.....	Omaha, Nebraska
Simmons, Cicero E.....	Tucson, Arizona
Simms, Theresa Roberta.....	Mansfield, Texas

NAME	RESIDENCE
Simon, John Dewey.....	Florence
Singleton, Ellen	Shelbyville, Missouri
Singleton, Sue	Shelbyville, Missouri
Skinner, Frances	Paris, Texas
Skinner, Helen	Paris, Texas
Slack, Mamie Elsie.....	Keokuk, Iowa
Slater, Opal	Boulder
Slavens, Gladys M.....	Ellis, Nebraska
Slavens, Lillian J.....	Hutchinson, Kansas
Small, Margaret.....	Kansas City, Kansas
Smalley, Lois.....	Claude, Texas
Smith, Arrolaine.....	Kansas City, Missouri
Smith, Barney Ray.....	Boulder
Smith, Charles Grandison.....	Moffat
Smith, Harry Denman.....	Enid, Oklahoma
Smith, Hedric Elizabeth.....	Memphis, Tennessee
Smith, Hulah	Boulder
Smith, Lewis Garrison.....	Rochester, New York
Smith, Lois.....	Muskogee, Oklahoma
Smith, Margaret A.....	Pittsburgh, Pennsylvania
Smith, Marjorie.....	Texarkana, Texas
Smith, Mary Ella.....	Emporia, Kansas
Smith, Mary Flora.....	Kansas City, Missouri
Smith, Mildred Pauline.....	Polk, Nebraska
Smith, Nina Jane.....	Howard, Kansas
Smith, Opal	Fowler
Smith, T. Berry.....	Fayette, Missouri
Smith, Terryl C.....	Boulder
Snider, James Birch.....	Denver
Snow, Nola Jane.....	Grandview, Texas
Snuggs, Marion.....	San Antonio, Texas
Snyder, Gladys Lillian.....	Des Moines, Iowa
Soderstrom, Verna Irene.....	Wichita, Kansas
Solt, Lois	Denver
Southard, George G., M.D.....	Denver
Southern, Montrose.....	Haynesville, Louisiana
Sparks, Lillian.....	Wichita, Kansas
Spaulding, Mabel C.....	Pittsburgh, Pennsylvania
Speer, Beulah	Carbon, Texas
Speer, Sarah Eunice.....	Clements, Kansas
Spencer, Floyd A.....	Boulder
Spencer, Maude.....	Kansas City, Missouri
Spencer, Pearl Conger.....	Boulder
Spencer, Richard C.....	Boulder
Spiller, Mabel M.....	Gardner, Illinois
Sprague, Mildred S.....	Des Moines, Iowa
Squires, Madeline Ruth.....	Sterling
Stafford, Esterre Mayree.....	Nickerson, Kansas
Stafford, Genevieve Alice.....	Norfolk, Nebraska
Staples, Otto B.....	Grand Junction
Staples, Samuel James.....	Creede
Starks, Grace Mildred.....	Iola, Kansas
Starr, Nelsie Juanita.....	Tonkawa, Oklahoma
St. Clair, James.....	Longmont
St. Clair, Laura.....	Dresden, Ohio
Steanson, Kate	Oklahoma City, Oklahoma
Stenger, Cecilia C.....	Columbus, Nebraska
Stephenson, Ola.....	Okemah, Oklahoma
Stevens, Alice Lucile.....	Nickerson, Kansas
Stevens, Helen K.....	Parsons, Kansas
Stevenson, Jessie H.....	Grand Rapids, Michigan
Stewart, Harry Martin.....	Turon, Kansas
St. John, Helen.....	Kansas City, Kansas

NAME	RESIDENCE
Stockley, Callie Lawes.....	New Orleans, Louisiana
Stone, Caleb	Denver
Stone, Cora Foster.....	Galesburg, Illinois
Stone, Etta Mary.....	Lu Verne, Iowa
Stone, Vivian.....	Marissa, Illinois
Storey, Mary Etta.....	Annona, Texas
Story, Mary B.....	Winfield, Kansas
Stratton, Marjorie	Boulder
Stratton, Rosemary	Boulder
Strauss, Elsie Moore.....	Aurora
Stubblefield, May.....	New York City, New York
Stubbs, Frank W.....	Delta
Stubbs, Jessie E., M.D.....	La Junta
Sturdevant, Kittie C.....	Shawnee, Oklahoma
Stutt, Minnie Linore.....	Avoca, Nebraska
Suess, Willard F.....	Denver
Swayne, Ida Loyd.....	Boulder
Swayze, Minnie Eldora.....	Kansas City, Missouri
Switzer, Miriam.....	Clinton, Missouri
Sylvester, Donnell T.....	Albuquerque, New Mexico
Syron, Charles L.....	Dallas, Texas
Tarkoff, Harry	Boulder
Tarkoff, Irma	Boulder
Tate, Jennie	Abilene, Texas
Taylor, Anna Belle.....	Ponca City, Oklahoma
Taylor, Edith	Boulder
Taylor, Elsie	Waterloo, Iowa
Taylor, Helen Pearl.....	Bowling Green, Missouri
Taylor, Lucile.....	Shawnee, Oklahoma
Taylor, Mabel.....	Corpus Christie, Texas
Taylor, Ralph O.....	Boulder
Terrien, Myrtle	Loveland
Terwilliger, Mary Elizabeth.....	Boulder
Test, Alice B.....	Santa Fe, New Mexico
Theeson, Esther.....	Claremore, Oklahoma
Theeson, Olive.....	Claremore, Oklahoma
Thomas, Byrd.....	Arkadelphia, Arkansas
Thomas, Hazel, A.B.....	Boulder
Thomas, Marjorie.....	Arkadelphia, Arkansas
Thompson, Frances	Boulder
Thompson, Harold Clark.....	Greeley
Thompson, Helen Josephine.....	Indianola, Iowa
Thompson, Katherine.....	McKinney, Texas
Thompson, Marietta.....	Tulsa, Oklahoma
Thompson, Martha A.....	Kansas City, Kansas
Thompson, Nan M.....	Boone, Iowa
Tiahrt, Leon Jess.....	Dolton, South Dakota
Tileston, Roland Ray.....	Colorado Springs
Tipton, Lula Mary.....	Dyersburg, Tennessee
Toland, Elizabeth Jane.....	Braymer, Missouri
Toogood, Dorothea	Indianola, Nebraska
Toothaker, Olive	Palisade
Towner, Mabel Vesta.....	Kansas City, Missouri
Townsend, Onabelle, A.B.....	Boulder
Trail, Nellie Margaret.....	New Haven, Missouri
Treece, Mamie Leona.....	Cordell, Oklahoma
Trezise, Edith	Boulder
Trezise, Pauline	Boulder
Turk, Evelyn	Purcell, Oklahoma
Turner, Minnie Margaret.....	Greenville, Texas
Turner, Olive.....	Rapid City, South Dakota
Turner, Pearl V.....	Boulder
Turney, Alice Elizabeth.....	Loveland

NAME	RESIDENCE
Tuttle, Jewel Laura.....	Commerce, Texas
Tyson, Vera Bartlett.....	Fort Worth, Texas
Unsold, George Peterkin.....	Telluride
Updike, Mary Ella.....	Trenton, New Jersey
Vagnino, Louis S.....	Denver
Van Antwerp, Maude L.....	Macomb, Illinois
Van Male, John Edward.....	Denver
Wade, T. W.....	Dallas, Texas
Wagler, Mattie.....	Bucklin, Kansas
Wagner, Lulu.....	Sullivan, Indiana
Wagor, Pirlh.....	Chester, Nebraska
Wahlgren, Harriet E.....	Washington, Nebraska
Waite, Lillian E.....	Oklahoma City, Oklahoma
Walbridge, Clarence Friedrich.....	Durango
Walker, Gertrude.....	Bigelow, Missouri
Walker, Mary Eugenia.....	Boulder
Wall, Edna E., A.B.....	Burdette, Iowa
Wall, Marie Maude.....	Tulsa, Oklahoma
Wallace, Blaine B.....	Denver
Wallack, Faye.....	Winfield, Kansas
Walsh, Walter M.....	Denver
Walter, Harvey Smith.....	Kansas City, Missouri
Walton, Joseph Hepford.....	Leadville
Wanamaker, Lucy.....	Chillicothe, Missouri
Ware, Gertrude H.....	Atlanta, Georgia
Ware, Mary E.....	Bartlesville, Oklahoma
Warner, Bertha B.....	Red Oak, Iowa
Warrington, Jesse G.....	Boulder
Washington, Charlotte L.....	Tulsa, Oklahoma
Watkins, Martha.....	Madill, Oklahoma
Watson, Stella Mary.....	Burkett, Texas
Wear, Carrie Etta.....	Excelsior Springs, Missouri
Webb, Elizabeth R.....	Ada, Oklahoma
Webb, Everett Marvin.....	Raton, New Mexico
Webb, Helen Marie.....	Franklin, Indiana
Wegehenkel, Hilda.....	Hamilton, Illinois
Wehman, Laura.....	Burlington, Iowa
Weis, Eunice.....	St. Louis, Missouri
Weis, Norma.....	St. Louis, Missouri
Weisert, Richard.....	St. Louis, Missouri
Welch, Marion.....	Emporia, Kansas
Weld, Dana P.....	Little Rock, Arkansas
Weld, Jean.....	Little Rock, Arkansas
Wells, Beulah Irene.....	Enid, Oklahoma
Wentworth, Bertha E.....	Furley, Kansas
Weyand, Esther Marion.....	Spearville, Kansas
Wharton, Ozie Causadie.....	Breckenridge, Texas
Wheatley, George.....	Boulder
Wheeler, Alice L.....	Indianola, Iowa
Wheeler, Elsie R.....	Okemah, Oklahoma
Wheless, Leola.....	Weir, Texas
Whinery, Esther.....	Tonkawa, Oklahoma
Whitcomb, Edna Osborne.....	Lawrence, Kansas
White, Bertha Ann.....	Asher, Oklahoma
White, Katherine.....	Manitou
White, Lucy H.....	Ottawa, Kansas
White, Mariah D.....	New Orleans, Louisiana
White, Roscoe H.....	Stockdale, Texas
White, S. Ruth.....	Asher, Oklahoma
White, Vivian.....	Boulder
White, Wilford Lenfesty.....	Boulder
Whitney, Jennie Merrill.....	Kansas City, Missouri
Whiton, Emma K.....	Pueblo

NAME	RESIDENCE
Whitten, Petrine Charlotte.....	Boulder
Wiegand, Eunice.....	Chappell, Nebraska
Wiggins, Loretti Seattle.....	Canyon, Texas
Wilkinson, Margaret Louise.....	Fayetteville, Arkansas
Williams, Alta	Boulder
Williams, Beuford Groves.....	Duncan, Oklahoma
Williams, Masel Hilda.....	Carbon, Texas
Williams, May.....	St. Joseph, Missouri
Williams, May Elizabeth.....	Burrton, Kansas
Williams, Oscar Terrill.....	Duncan, Oklahoma
Williams, Sallie McLean.....	Arkadelphia, Arkansas
Williamson, Violet.....	Tulsa, Oklahoma
Willis, Neva W.....	Abilene, Texas
Willis, Sallie L.....	Abilene, Texas
Willis, Willet R.....	Colorado Springs
Wilson, Belle.....	Eastland, Texas
Wilson, Beulah G.....	Manitou
Wilson, Clara Belle.....	Kansas City, Missouri
Wilson, Clara E.....	Monticello, Arkansas
Wilson, Cora L.....	Parkville, Missouri
Wilson, Ella Mary.....	Kearney, Nebraska
Wilson, Lillian Alice.....	Tulsa, Oklahoma
Wilson, Mamie C.....	Kansas City, Missouri
Wilson, Mary Ellen.....	Santa Fe, New Mexico
Wilson, Mary Mason.....	Kansas City, Kansas
Wilson, Matthew Hale.....	Parkville, Missouri
Wilson, Matthew James.....	Boulder
Wilson, Mildred E.....	Claude, Texas
Wimfrey, Silva B.....	Bartlesville, Oklahoma
Winn, Lucile	Denver
Winslow, Loraine Elbertine.....	Lander, Wyoming
Winston, Alexander F.....	Cripple Creek
Winston, Myrtle Elizabeth Rentfro.....	Cripple Creek
Wise, Mildred Irene.....	Winfield, Kansas
Witt, Marion	Fort Worth, Texas
Wittemyer, John	Boulder
Witthar, Lizzie Caroline.....	Independence, Missouri
Wolf, Clayton S.....	Fort Collins
Wolf, Helen Sullivan.....	Fort Collins
Wolfe, Alpha Lillian.....	Seibert
Wolfe, Esther	Salina, Kansas
Wolverton, Alice Corbin.....	Norman, Oklahoma
Wood, Cornelia.....	Ripley, Tennessee
Wood, Inez	Boulder
Wood, Irene	Boulder
Wood, Violet.....	Haileyville, Oklahoma
Woodard, Laura.....	Windsor, Missouri
Woolworth, Florence.....	Kearney, Nebraska
Work, Hazel Foster.....	Ellsworth, Kansas
Work, Sarah.....	Fort Morgan
Wren, Lena	Trinidad
Wright, Laurence	Boulder
Wyant, Beulah L.....	Newman Grove, Nebraska
Wynne, Mamie F.....	Dallas, Texas
Wythe, Grace	Weatherford, Texas
Wythe, Lois	Weatherford, Texas
Yates, Annie Mae.....	Abilene, Texas
Yates, Honor.....	Temple, Texas
Yeast, Nanna.....	Hamilton, Illinois
Yerby, Lavinia.....	Sweet Springs, Missouri
Yonge, Minnie	Sterling
Young, Emma Frances.....	Sac City, Iowa
Young, Leila Sue.....	Ripley, Tennessee

NAME	RESIDENCE
Young, Maude.....	Itasca, Texas
Young, Momie.....	Itasca, Texas
Zacher, Ruth.....	St. Louis, Missouri
Zingg, Robert M.....	Holyoke
Zirkle, Ruth	Denver

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* Registered in vocational courses, not of college grade, offered in cooperation with the Federal Board for Vocational Training.

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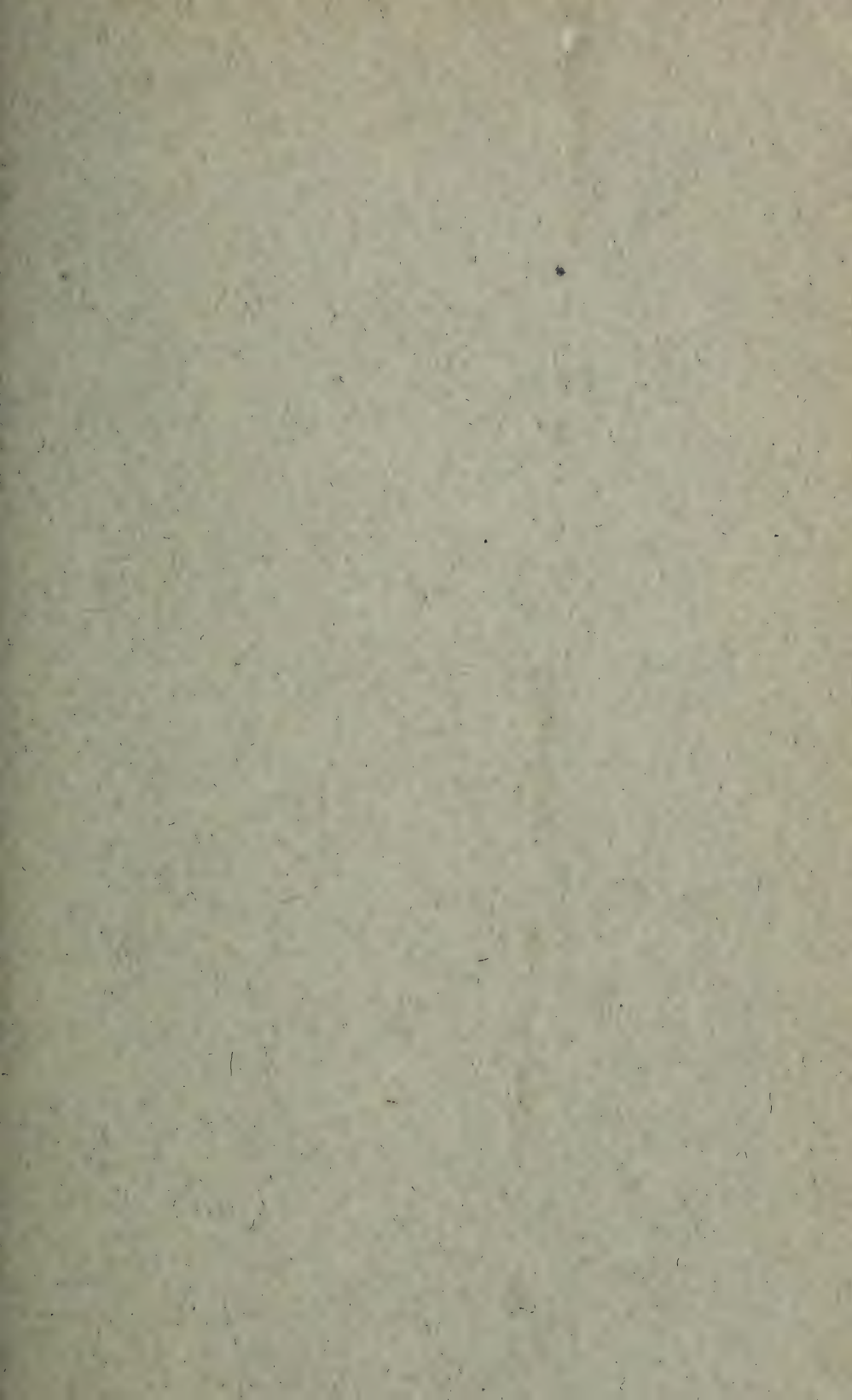
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CATALOGUE, 1920-1921



BOULDER, COLORADO, MARCH, 1921.

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BOULDER, COLORADO, MARCH, 1921.

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WATER AND
WIND

The
University of Colorado

Catalogue, 1920-1921

With
Announcements for
1921-1922



Boulder, Colorado, March, 1921.

1921

CALENDAR

1921

	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Jan.	2	3	4	5	6	7	8	May	1	2	3	4	5	6	7	Sept.	4	5	6	7	8	9	10
	9	10	11	12	13	14	15		8	9	10	11	12	13	14		11	12	13	14	15	16	17
	16	17	18	19	20	21	22		15	16	17	18	19	20	21		18	19	20	21	22	23	24
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Feb.	6	7	8	9	10	11	12	June	5	6	7	8	9	10	11	Oct.	2	3	4	5	6	7	8
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	6	7	8	9	10	11	12		10	11	12	13	14	15	16		6	7	8	9	10	11	12
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	17	18	19	20	21	22	23		14	15	16	17	18	19	20		11	12	13	14	15	16	17
	24	25	26	27	28	29	30		21	22	23	24	25	26	27		18	19	20	21	22	23	24
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1922

CALENDAR

1922

	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	
Jan.	1	2	3	4	5	6	7	May	--	1	2	3	4	5	6	Sept.	--	--	--	--	--	1	2	
	8	9	10	11	12	13	14		7	8	9	10	11	12	13		3	4	5	6	7	8	9	
	15	16	17	18	19	20	21		14	15	16	17	18	19	20		10	11	12	13	14	15	16	
	22	23	24	25	26	27	28		21	22	23	24	25	26	27		17	18	19	20	21	22	23	
	29	30	31	--	--	--	--		28	29	30	31	--	--	--		24	25	26	27	28	29	30	
Feb.	--	--	--	1	2	3	4	June	--	--	--	--	--	1	2	3	Oct.	1	2	3	4	5	6	7
	5	6	7	8	9	10	11		4	5	6	7	8	9	10		8	9	10	11	12	13	14	
	12	13	14	15	16	17	18		11	12	13	14	15	16	17		15	16	17	18	19	20	21	
	19	20	21	22	23	24	25		18	19	20	21	22	23	24		22	23	24	25	26	27	28	
	26	27	28	--	--	--	--		25	26	27	28	29	30	--		29	30	31	--	--	--	--	
Mar.	--	--	--	1	2	3	4	July	--	--	--	--	--	--	1	Nov.	--	--	--	--	--	--	--	
	5	6	7	8	9	10	11		2	3	4	5	6	7	8		5	6	7	8	9	10	11	
	12	13	14	15	16	17	18		9	10	11	12	13	14	15		12	13	14	15	16	17	18	
	19	20	21	22	23	24	25		16	17	18	19	20	21	22		19	20	21	22	23	24	25	
	26	27	28	29	30	31	--		23	24	25	26	27	28	29		26	27	28	29	30	--	--	
	--	--	--	--	--	--	--		30	31	--	--	--	--	--		--	--	--	--	--	--	--	
April	--	--	--	--	--	--	1	Aug.	--	--	--	--	--	--	1	Dec.	--	--	--	--	--	--	1	
	2	3	4	5	6	7	8		6	7	8	9	10	11	12		3	4	5	6	7	8	9	
	9	10	11	12	13	14	15		13	14	15	16	17	18	19		10	11	12	13	14	15	16	
	16	17	18	19	20	21	22		20	21	22	23	24	25	26		17	18	19	20	21	22	23	
	23	24	25	26	27	28	29		27	28	29	30	31	--	--		24	25	26	27	28	29	30	
	30	--	--	--	--	--	--		--	--	--	--	--	--	--		31	--	--	--	--	--	--	

ANNOUNCEMENTS

1921.

- Jan. 3, Monday.....Winter Quarter begins.
- Feb. 12, Saturday.....Lincoln's Birthday (Holiday).
- Feb. 22, Tuesday.....Washington's Birthday (Holiday).
- Mar. 21, Monday.....Spring Quarter begins.
- April 15, Friday.....Arbor Day (Holiday).
- May 30, Monday.....Decoration Day (Holiday).
- June 3, Friday.....Meeting of Board of Regents and Advisory Board.
- Senior Class Play.
- June 4, Saturday.....Class Day Exercises and Parade.
- President's Reception.
- Alumni Dinner and Reception.
- Senior Promenade.
- June 5, Sunday.....Baccalaureate Address.
- June 6, Monday.....Commencement.
- June 13 to July 20....Summer Quarter (first term).
- July 21 to Aug. 27... Summer Quarter (second term).

ACADEMIC YEAR 1921-1922

- Sept. 26, Monday.....Autumn Quarter begins; Registration.
 (Registration begins Friday, Sept. 23).
- Sept. 27, Tuesday.....Assembly of Students at 11:00.
- Nov. 8, Tuesday.....General Election Day (Holiday).
- Nov. 11, Friday.....Armistice Day (Holiday).
- Nov. 24, Thursday....Thanksgiving Day (Holiday).
- Nov. 25, Friday.....Holiday.
- Dec. 17, Saturday to

1922.

- Jan. 1, Sunday.....Winter Recess.
- Jan. 2, Monday.....Winter Quarter begins.

- Feb. 12, Sunday.....Lincoln's Birthday.
Feb. 22, Wednesday...Washington's Birthday (Holiday).
Mar. 18, Saturday....Spring vacation begins.
Mar. 27, Monday.....Spring Quarter begins.
May 30, Tuesday.....Decoration Day (Holiday).
June 9, Friday.....Senior Class Play.
June 10, Saturday.....Meeting of Board of Regents and Advisory
Board.
Class Day Exercises and Parade.
President's Reception.
Alumni Dinner and Reception.
Senior Promenade.
June 11, Sunday.....Baccalaureate Address.
June 12, Monday.....Commencement.
June 19 to Sept. 1....Summer Quarter.

BOARD OF REGENTS

CLARK G. MITCHELL.....	Denver
Term expires 1922.	
CLIFFORD W. MILLS.....	Denver
Term expires 1922.	
FRANK W. MEANS.....	Saguache
Term expires 1924.	
THOMAS L. WILKINSON.....	Denver
Term expires 1924.	
DR. O. S. FOWLER.....	Denver
Term expires 1926.	
EARL W. HASKINS	La Junta
Term expires 1926.	

OFFICERS OF THE BOARD

GEORGE NORLIN.....	Boulder	President
FRANK H. WOLCOTT.....	Boulder	Secretary
CHARLES H. CHENEY.....	Boulder	Treasurer

COMMITTEES OF THE BOARD

EXECUTIVE—Messrs. Mills, Haskins, Means, Norlin.

AUDITING—Messrs. Mills, Mitchell, Norlin.

BUILDINGS AND GROUNDS—Messrs. Wilkinson, Mills, Haskins, Fowler, Norlin.

FINANCE—Messrs. Mitchell, Means, Haskins.

LIBRARY—Messrs. Means, Haskins, Smith.

FACULTY RELATIONS—Messrs. Mills, Mitchell, Haskins, Norlin.

OFFICIAL RELATIONS AND LEGISLATION—Messrs. Wilkinson, Mitchell, Fowler, Means, Norlin.

ADVISORY BOARD*

	Town	County.
GEORGE A. GARARD.....	Brighton	Adams
		Arapahoe
ALLEN J. NOSSAMAN, M.D.....	Pagosa Springs	Archuleta
WILLIAM HOOKER.....	Springfield	Baca
P. G. SCOTT.....	Las Animas.....	Bent
ALLEN M. LAMBRIGHT.....	Las Animas.....	Bent
THOMAS BUTLER.....	Longmont	Boulder
GEORGE H. CURFMAN, M.D.....	Salida	Chaffee
E. P. HICKMAN.....	Cheyenne Wells	Cheyenne
ALBERT A. STOVER.....	Idaho Springs.....	Clear Creek
FREDERICK W. SWANSON.....	Alamosa	Conejos
CHARLES GROENENDYKE.....	San Luis	Costilla
		Crowley
JOHN H. LEARY.....	Westcliffe	Custer
GEORGE STEPHAN.....	Delta	Delta
GUSTAVE C. BARTELS.....	Denver	Denver
CLAYTON C. DORSEY.....	Denver	Denver
**CHARLES R. DUDLEY.....	Denver	Denver
NELSON FRANKLIN.....	Denver	Denver
IRVING HALE.....	Denver	Denver
HORACE N. HAWKINS.....	Denver	Denver
EDWIN H. PARK.....	Denver	Denver
JOHN H. GABRIEL.....	Denver	Denver
CLIFFORD C. PARKS.....	Denver	Denver
FRANK E. SHEPARD.....	Denver	Denver
JOHN W. SPRINGER.....	Denver	Denver
THOMAS B. STEARNS.....	Denver	Denver
CHARLES MACALLISTER WILLCOX....	Denver	Denver
MRS. ANNA WOLCOTT VAILE.....	Denver	Denver
JULIUS C. GUNTER.....	Denver	Denver
		Dolores
JOHN ANDERSON.....	Castle Rock	Douglas
JAMES DILTS.....	Eagle	Eagle
WILLIAM D. REILLY.....	Kiowa	Elbert

* The members of the Advisory Board are appointed by the Regents for a term of one year. The service is without compensation. Annual meetings of the Advisory Board are held at the University during Commencement week.

** Died February 21, 1921.

	Town	County.
ROBERT KERR.....	Colorado Springs.....	El Paso
MATT N. LINES.....	Canon City.....	Fremont
MRS. MINNIE L. HARDING.....	Canon City	Fremont
JAMES G. JOHNSTON.....	Florence	Fremont Garfield
CHASE WITHROW.....	Central City	Gilpin
DAVID P. HOWARD.....	Sulphur Springs.....	Grand
JOHN A. LEHRITTER.....	Gunnison	Gunnison
BENJAMIN F. CUMMINGS, M.D.....	Lake City.....	Hinsdale
CHARLES HAYDEN	Walsenburg	Huerfano
OWEN S. CASE	Walden	Jackson
WILLIAM G. SMITH.....	Golden	Jefferson
RAYMOND MILLER.....	Galatea	Kiowa
WILLIAM D. SELDER.....	Burlington	Kit Carson
CHARLES A. PIKE.....	Durango	La Plata
FRANK J. ANNIS.....	Fort Collins.....	Larimer
JOSEPH C. BELL.....	Trinidad.....	Las Animas
EDWARD H. DAY.....	Trinidad.....	Las Animas
EUSEBIO CHACON.....	Trinidad.....	Las Animas Lincoln
L. K. PARR.....	Padroni	Logan
HORACE T. DELONG.....	Grand Junction.....	Mesa Mineral
ROBERT M. RICHARDSON.....	Craig	Moffat
LEONARD H. CLARK, M.D.....	Mancos	Montezuma
J. F. COLEMAN, M.D.....	Deertrail	Montrose
FREDERICK W. LOCKWOOD, M.D.....	Fort Morgan.....	Morgan
ROBERT W. PATTERSON.....	La Junta	Otero
G. M. DAMERON.....	La Junta	Otero
WILLIAM W. ROWAN, M.D.....	Ouray	Ouray Park
R. G. MCKIBBEN.....	Holyoke	Phillips Pitkin
JOHN C. HORN.....	Lamar	Prowers
C. B. THOMAN.....	Lamar	Prowers
J. K. DOUGHTY.....	Lamar	Prowers
ALVA ADAMS.....	Pueblo	Pueblo
P. J. DUGAN.....	Pueblo	Pueblo
JAMES LYTTLE.....	Meeker	Rio Blanco

	Town	County.
JOHN A. BILES, M.D.....	<i>Del Norte</i>	<i>Rio Grande</i>
BENJAMIN F. NIESZ.....	<i>Steamboat Springs</i>	<i>Routt</i>
CHARLES TARBELL.....	<i>Saguache</i>	<i>Saguache</i>
JOHN T. JOYCE.....	<i>Silverton</i>	<i>San Juan</i>
STEPHEN A. BAILEY.....	<i>Telluride</i>	<i>San Miguel</i>
ETHELBERT B. ADAMS.....	<i>Telluride</i>	<i>San Miguel</i>
BERTRAND D. PARKER, JR.....	<i>Julesburg</i>	<i>Sedgwick</i>
CLARENCE O. FINCH.....	<i>Julesburg</i>	<i>Sedgwick</i>
WILLIAM F. FORMAN.....	<i>Breckenridge</i>	<i>Summit</i>
GRIFFITH R. LEWIS.....	<i>Cripple Creek</i>	<i>Teller</i>
EGBERT MORE.....	<i>Akron</i>	<i>Washington</i>
GEORGE D. STATLER.....	<i>Greeley</i>	<i>Weld</i>
THOMAS B. GROVES.....	<i>Wray</i>	<i>Yuma</i>

COLLEGES AND SCHOOLS OF THE UNIVERSITY

I. COLLEGE OF ARTS AND SCIENCES:

- . Leading to the degree A.B.

College of Commerce:

- Leading to the degree A.B. and special certificate.

College of Education:

- Leading to the degree A.B. and special certificate.

College of Music:

- Leading to the degree B.Mus.

II. COLLEGE OF ENGINEERING:

Civil Engineering, leading to the degree B.S. (C.E.)

Electrical Engineering, leading to the degree B.S. (E.E.)

Mechanical Engineering, leading to the degree B.S. (M.E.)

Chemical Engineering, leading to the degree B.S. (Ch.E.)

III. GRADUATE SCHOOL:

- Leading to the degrees Ph.D., A.M., M.S., C.E., E.E.,
M.E., D.Oph. and M.S. (San. Eng.)

IV. SCHOOL OF MEDICINE:

- Leading to the degree M.D.

Training School for Nurses:

- . Leading to a special certificate.

V. SCHOOL OF LAW:

- Leading to the degree LL.B.

VI. SCHOOL OF PHARMACY:

- Leading to the degrees Ph.C. and B.S. (Phar.).

VII. SUMMER QUARTER.

VIII. UNIVERSITY EXTENSION DIVISION:

Department of Extension Instruction:

Correspondence Instruction.

Class Instruction.

Vocational Instruction.

Lectures and Visual Instruction.

Department of Public Service:

Community Organization.

Business and Commercial Development.

Americanization.

Library Extension.

Municipal Reference.

GENERAL FACULTY*

GEORGE NORLIN, Ph.D., LL.D., President.

JAMES H. BAKER, A.M., LL.D., President, Emeritus.

PROFESSORS

J. RAYMOND BRACKETT, Ph.D., Dean of the Graduate School, Emeritus; Professor of Comparative and English Literature, Emeritus.

LUMAN M. GIFFIN, M.D., Professor of Surgery, Emeritus.

IRA M. DELONG, A.M., LL.D., Professor of Mathematics.

ALBERT A. REED, LL.B., Professor of Law, Emeritus.

WILLIAM B. CRAIG, M.D., Professor of Surgery, Emeritus.

E. BARBER QUEAL, M.D., Professor of Physiology, Emeritus.

FRED B. R. HELLEMS, Ph.D., LL.D., Dean of the College of Arts and Sciences; Professor of History of Art.

CHARLES C. AYER, Ph.D., Professor of Romance Languages.

FRANCIS RAMALEY, Ph.D., Professor of Biology.

CHARLES A. ELDER, M.D., Professor of Surgery, Emeritus.

NEWTON WIEST, M.D., Professor of Dermatology, Emeritus.

MELANCHTHON F. LIBBY, Ph.D., Professor of Philosophy.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

JOHN CAMPBELL, A.M., LL.B., LL.D., Dean of the School of Law, Emeritus.

†RUSSELL D. GEORGE, A.M., Professor of Geology.

JOHN D. FLEMING, A.B., LL.B., LL.D., Dean of the School of Law; Charles Inglis Thomson Professor of Law.

JAMES R. ARNEILL, A.B., M.D., Professor of Medicine, Emeritus.

CHARLES B. LYMAN, M.D., Professor of Clinical Surgery.

JOHN M. FOSTER, M.D., Professor of Oto-laryngology, Emeritus.

EDWARD JACKSON, A.M., M.D., Sc.D., Professor of Ophthalmology.

HERBERT S. EVANS, E.E., Dean of the College of Engineering; Professor of Electrical Engineering.

JOHN A. HUNTER, M.E., Professor of Mechanical Engineering.

* Professors, Associate Professors, Assistant Professors, Lecturers, and Instructors are arranged in the order of appointment. Assistants rank as their departments. Within the general faculty are organized the Advisory Council, Senate, and faculties of the several schools and colleges

† On leave of absence, 1920-1921.

- †THEODORE D. A. COCKERELL, Sc.D., Professor of Zoology.
WILLIAM P. HARLOW, A.B., M.D., Dean of the School of Medicine,
Emeritus.
- †JAMES F. WILLARD, Ph.D., Professor of History.
OLIVER C. LESTER, Ph.D., Dean of the Graduate School; Professor of
Physics.
FRANK E. THOMPSON, A.B., Professor of Education.
ROSS C. WHITMAN, A.B., M.D., Secretary of the School of Medicine,
Boulder Division; Professor of Pathology.
JUNIUS HENDERSON, A.B., Curator of the Museum; Professor of
Natural History.
JOHN S. McLUCAS, A.M., Professor of English.
GRACE VAN SWERINGEN BAUR, Ph.D., Professor of Germanic Lan-
guages.
MILO G. DERHAM, Ph.D., Director of the Summer Quarter; Professor
of Classics.
LAWRENCE W. COLE, Ph.D., Professor of Psychology.
GEORGE E. NEUHAUS, M.D., Professor Neurology and Psychiatry.
HENRY SEWALL, M.D., Ph.D., Sc.D., Professor of Medicine, Emer-
itus.
EDMUND J. A. ROGERS, A.M., M.D., Professor of Surgery, Emeritus.
THOMAS H. HAWKINS, A.M., M.D., LL.D., Professor of Surgery,
Emeritus.
ROBERT LEVY, M.D., Professor of Oto-laryngology.
WILLIAM H. DAVIS, M.D., Professor of Dermatology, Emeritus.
WILLIAM J. ROTHWELL, M.D., Professor of Medicine, Emeritus.
FRANCIS H. McNAUGHT, M.D., Professor of Obstetrics, Emeritus.
LEONARD FREEMAN, B.S., A.M., M.D., Professor of Surgery.
CHARLES A. POWERS, A.M., M.D., Professor of Surgery, Emeritus.
HERBERT B. WHITNEY, A.B., M.D., Professor of Medicine, Emeritus.
SHERMAN G. BONNEY, A.M., M.D., Professor of Medicine, Emeritus.
GEORGE B. PACKARD, M.D., Professor of Orthopedics, Emeritus.
T. MITCHELL BURNS, M.D., Professor of Obstetrics, Emeritus.
WALTER A. JAYNE, M.D., Professor of Gynecology, Emeritus.
CHARLES B. VANZANT, M.D., Professor of Physiology, Emeritus.
WILLIAM C. MITCHELL, M.D., Professor of Bacteriology, Emeritus.
DAVID H. COOVER, M.D., Professor of Ophthalmology, Emeritus.
JAMES C. TODD, Ph.B., M.D., Professor of Clinical Pathology.

† On leave of absence, 1920-1921.

HOMER C. WASHBURN, Ph.C., B.S. (Phar.), Dean of the College of Pharmacy; Professor of Pharmacy.

ARTHUR J. MARKLEY D.D.S., M.D., Professor of Dermatology.

†LORAN D. OSBORN, Ph.D., Director of the Extension Division; Professor of Sociology.

FREDERICK A. BUSHEE, Ph.D., Director of the College of Commerce; Professor of Economics and Sociology.

RALPH D. CRAWFORD, Ph.D., Professor of Mineralogy and Petrology.

FRED G. FOLSOM, A.B., LL.B., Professor of Law.

WILLIAM R. ARTHUR, A.B., LL.B., Professor of Law.

CHARLES N. MEADER, A.B., M.D., Dean of the School of Medicine; Professor of Medicine.

ARNOLD J. LIEN, Ph.D., Professor of Political Science.

ROBERT C. LEWIS, Ph.D., Director of Henry S. Denison Research Laboratory; Professor of Biochemistry.

HERBERT S. HADLEY, A.B., LL.B., LL.D., Professor of Law.

CLARENCE B. INGRAHAM, Ph.B., M.D., Professor of Obstetrics and Gynecology.

WHITNEY C. HUNTINGTON, M.S., C.E., Professor of Civil Engineering.

CHARLES S. SPERRY, A.B., C.E., Professor of Engineering Mathematics.

JAY W. WOODROW, Ph.D., Professor of Physics.

†CHARLES M. GRUBER, Ph.D., Professor of Physiology and Pharmacology.

IVAN E. WALLIN, A.M., Sc.D., Professor of Anatomy.

GEORGE F. REYNOLDS, Ph.D., Professor of English Literature.

HARRY M. BARRETT, A.M., Litt.D., Director of the College of Education; Professor of School Administration.

FRANK WILBUR CHACE, Mus.Doc., Director of the College of Music; Professor of Music.

FRANK E. E. GERMAN, A.B., Dr. ès Sc., Professor of Chemistry.

JOSIAH N. HALL, B.S., M.D., Professor of Medicine, Emeritus.

ASSOCIATE PROFESSORS

OSCAR M. GILBERT, M.D., Associate Professor of Medicine.

*HOWELL T. PERSHING, M.S., M.D., LL.D., Associate Professor of Psychiatry.

MOSES KLEINER, M.D., Associate Professor of Therapeutics.

† On leave of absence, 1920-1921; Resigned February 15, 1921.

† On leave of absence, 1920-1921.

* Resigned July 15, 1920.

MELVILLE BLACK, M.D., Associate Professor of Ophthalmology.

SAMUEL B. CHILDS, A.B., M.D., Associate Professor of Roentgenology.

WILLIAM D. BANE, M.D., Associate Professor of Oto-laryngology.

OLIVER LYONS, M.D., Associate Professor of Genito-Urinary Surgery.

SAMUEL FOSDICK JONES, M.D., Associate Professor of Orthopedic Surgery.

FRANK P. GENGENBACH, M.D., Associate Professor of Pediatrics.

C. HENRY SMITH, Ph.B., Librarian; Associate Professor of Bibliography.

CARL C. ECKHARDT, Ph.D., Associate Professor of History.

FRANK S. BAUER, M.E., Associate Professor of Mechanical Engineering.

PHILIP G. WORCESTER, A.M., Dean of Men; Associate Professor of Geology.

FRANK G. ALLEN, B.S. (M.E.), Associate Professor of Engineering Drawing.

IVAN C. CRAWFORD, C.E., Associate Professor of Civil Engineering.

GEORGE H. LIGHT, Ph.D., Associate Professor of Mathematics.

†THOMAS MAITLAND MARSHALL, Ph.D., Associate Professor of History.

‡OSCAR A. RANDOLPH, Ph.D., Associate Professor of Physics.

SIEBELT L. SIMMERING, M.S., M.E., Associate Professor of Mechanical Engineering.

W. CLINTON DUVALL, B.S. (E.E.), Associate Professor of Electrical Engineering.

CARSON GILLASPIE, M.D., Associate Professor of Anatomy.

JONTA BOEN MARCELLUS, B.S. (C.E.), Associate Professor of Civil Engineering.

S. ANTOINETTE BIGELOW, A.M., Dean of Women; Associate Professor of English Literature.

PAUL M. DEAN, Ph.D., Associate Professor of Chemistry.

WILLIAM B. PIETENPOL, Ph.D., Associate Professor of Physics.

ALFRED H. SWEET, Ph.D., Associate Professor of History.

ASSISTANT PROFESSORS

FROST C. BUCHEL, M.D., Assistant Professor of Surgery.

EDWARD F. DEAN, M.D., Assistant Professor of Clinical Surgery.

† Resigned September, 1920.

‡ Died April 11, 1920.

- AUBREY H. WILLIAMS, M.D., Assistant Professor of Clinical Surgery.
WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.
- *GEORGE H. CATTERMOLLE, M.D., Assistant Professor of Pediatrics.
EDWARD DELEHANTY, M.D., Assistant Professor of Neurology.
CLAUDE EDWARD COOPER, A.B., M.D., Assistant Professor of Otolaryngology.
RUDOLPH W. ARNDT, M.D., Assistant Professor of Medicine.
GEORGE A. MOLEEN, M.D., Assistant Professor of Neurology.
WALTER F. MALLORY, B.S. (M.E.), Assistant Professor of Mechanical Engineering.
FRANCIS WOLLE, A.M., Assistant Professor of English Literature.
IRENE P. MCKEEHAN, A.M., Assistant Professor of English.
ELIZA G. WILKINS, Ph.D., Assistant Professor of Classics.
JOHN B. DAVIS, M.D., Assistant Professor of Genito-Urinary Surgery.
EDWIN B. PLACE, Ph.D., Assistant Professor of Romance Languages.
W. OTTO BIRK, A.M., Assistant Professor of Engineering English.
JOHN W. RENNELL, Assistant Professor of Art.
MERVIN S. COOVER, E.E., Assistant Professor of Electrical Engineering.
CHARLES A. HUTCHINSON, A.M., Assistant Professor of Engineering Mathematics.
EDWARD R. MUGRAGE, A.M., M.D., Director of Laboratories (Denver); Assistant Professor of Pathology.
HUGH M. KINGERY, Ph.D., Assistant Professor of Anatomy.
CHARLES F. POE, A.M., B.S. (Phar.), Assistant Professor of Chemistry.
HORACE B. VAN VALKENBURGH, M.S., Assistant Professor of Chemistry.
BRYANT SMITH, A.M., LL.B., Assistant Professor of Law.
ANNA WILLIAMS, A.M., Assistant Professor of Home Economics.
SEVERANCE BURRAGE, B.S., D.P.H., Ph.D., Assistant Professor of Bacteriology and Hygiene.
OTTO S. KRETSCHMER, A.M., M.D., Assistant Professor of Physiology and Pharmacology.
ARTHUR J. TIEJE, Ph.D., Assistant Professor of Geology.
FULTON H. ANDERSON, Ph.D., Assistant Professor of Philosophy.
CLOUGH T. BURNETT, M.D., Assistant Professor of Medicine.

* On leave of absence, 1920-1921.

COLIN B. GOODYKOONTZ, Ph.D., Assistant Professor of American History.

*JOE MILLS, Director of Physical Education for Men.

CLARE H. SMALL, A.B., Director of Physical Education for Women.

CHARLES E. KENNEDY, M.D., Director of Physical Education for Men.

ELMORE PETERSEN, A.M., Acting Director of Extension Division;
Secretary of the Bureau of Business and Commercial Development.

CHARLES I. MADISON, Ph.B., Secretary of the Bureau of Community Organization, Extension Division.

ALMA GABRIEL, A.B., Secretary of the Bureau of Correspondence Instruction, Extension Division.

GEORGE C. MANN, A.B., Secretary of the Bureau of Vocational Instruction, Extension Division; Vocational Instructor.

CHARLES C. BROWN, A.B., Secretary of the Bureau of Class Instruction, Extension Division.

DOROTHA E. TALBERT, Secretary of the Bureau of Visual Instruction;
Secretary of the Bureau of Americanization, Extension Division.

M. F. BEESON, Ph.D., Superintendent, Western Colorado District, Extension Division.

LECTURERS

‡ROBERT S. MORRISON, Lecturer on Law of Mines and Mining.

WILLARD J. WHITE, A.M., M.D., Lecturer on Medical Jurisprudence.

JAMES W. MCCREARY, Lecturer on Law of Irrigation and Water Rights.

†JOHN E. ROBINSON, Lecturer on Bankruptcy.

HARRY S. SILVERSTEIN, A.B., Lecturer on Criminal Procedure.

†HENRY E. LUTZ, LL.B., Lecturer on Equity Pleading and Practice.

JOHN H. FRY, LL.B., Lecturer on Auxiliary Code Remedies.

JAMES H. PERSHING, A.B., Lecturer on Medical Jurisprudence.

ARTHUR H. EARLEY, M.D., Lecturer on Rectal Surgery.

ORA S. FOWLER, B.S., M.D., Lecturer on Local Anaesthetics.

ARTHUR W. FITZGERALD, A.B., LL.B., Lecturer on Conveyancing and Abstracts of Title.

* Resigned June, 1920.

‡ Died September, 1920.

† Resigned 1920.

WILLIAM C. FINNOFF, M.D., D.Oph., Lecturer on Ophthalmology.

ELSIE SEELYE PRATT, M.D., Medical Advisor to Women.

INSTRUCTORS

FRANK R. SPENCER, A.B., M.D., Instructor in Oto-laryngology.

CLAY E. GIFFIN, A.B., M.D., Instructor in Surgery.

*CLARIBEL KENDALL, A.M., Instructor in Mathematics.

CHARLES H. MCCORMICK, E.E., Instructor in Electrical Engineering.

HENRY WILLIAMS WILCOX, M.D., Instructor in Orthopedic Surgery.

CYRUS L. PERSHING, B.S., M.D., Instructor in Neurology.

ROBERT L. CHARLES, M.D., Instructor in Anaesthesia.

WILLIAM H. CRISP, M.D., D.Oph., Instructor in Ophthalmology.

WILLIAM WILEY JONES, A.B., M.D., Instructor in Medicine.

MAUDE E. CRAIG, A.M., Instructor in Latin.

GEORGE P. LINGENFELTER, M.D., Instructor in Dermatology and Syphilis.

GLADYS C. CURTIS, A.M., Instructor in Education.

OLIN INGRAHAM, A.M., Instructor in Economics.

BESS R. GREEN, A.M., Instructor in Biology.

JOHN MURRAY BARNEY, M.D., Instructor in Medicine.

CASPER F. HEGNER, M.D., Instructor in Surgery.

OSCAR M. SHERE, M.D., Instructor in Surgery.

CUTHBERT POWELL, M.D., Instructor in Gynecology.

FOSTER H. CARY, M.D., Instructor in Obstetrics.

†CHARLES A. FERRIS, M.D., Instructor in Obstetrics.

HARRY L. BAUM, M.D., Instructor in Oto-laryngology.

BENJAMIN D. CORNELL, A.M., Instructor in Chemistry.

WAYNE S. BEATTIE, B.S. (M.E.), Instructor in Mechanical Engineering.

EVA M. BAUM, A.B., Instructor in Chemistry.

CLARA HISCOCK BRACE, A.B., Instructor in Education.

TRACY R. LOVE, Ph.B., M.D., Instructor in Dietetics.

HENRY M. SAYRE, Instructor in Accounting.

JOHN A. McCAW, M.D., D.Oph., Instructor in Ophthalmology.

WILLIAM A. SEDWICK, M.D., Instructor in Ophthalmology.

HIRAM R. STILWILL, M.D., Instructor in Ophthalmology.

* On leave of absence, 1920-1921.

† Died February 1, 1921.

MAY SNYDER STONE, A.M., Instructor in Romance Languages.

WILLIAM F. BRUBAKER, B.S. (C.E.), Instructor in Engineering Drawing.

WILLIAM WARREN HOWE, A.B., Instructor in Chemistry.

FRED R. DUNGAN, B.S., Instructor in Civil Engineering.

CLEOPHILE B. DEAN, Ph.D., Instructor in Romance Languages.

ROBERT H. CANFIELD, B.S. (C.E.), Instructor in Civil Engineering.

EMMETT B. CARMICHAEL, A.B., Instructor in Chemistry.

EDNA L. JOHNSON, A.B., Instructor in Biology.

MURRAY F. SKINKER, B.S. (E.E.), Instructor in Engineering Mathematics.

EDNA DAVIS ROMIG, A.B., Instructor in English.

REBECCA W. VAILLE, A.B., Instructor in English.

LEONA VINCENT, A.B., Instructor in Psychology.

ARTHUR H. WARNER, A.B., B.S. (E.E.), Instructor in Physics.

CLAUDE N. SETTLES, A.B., Instructor in Engineering English.

WALTER K. NELSON, B.S. (E.E.), Instructor in Engineering Mathematics.

HERBERT C. HANSON, A.M., Instructor in Biology.

ALEXANDER ELLETT, Instructor in Physics.

CHESTER B. ASHCRAFT, Instructor in Mechanical Engineering.

BLANCHE SUTHERLAND, A.M., Instructor in English.

ALICE H. SULLIVAN, Ph.D., Instructor in Psychology.

MYRON E. WITHAM, B.S., C.E., Instructor in Civil Engineering.

EUGENE C. HARVEY, B.S. (C.E.), Instructor in Civil Engineering.

CHARLES M. ELDER, B.S., B.P.E., Instructor in Physical Education for Men.

RUSSELL H. LINDSAY, E.E., Instructor in Electrical Engineering.

CHARLES G. VAVRA, Instructor in Physical Education for Men.

FREDERICK E. BECKER, A.B., Instructor in Biology.

HILDA CARLSON, Instructor in Physical Education for Women.

BLAINE GIBSON, B.J., Director of Publicity; Instructor in Journalism.

WILLIAM H. HILL, A.B., Instructor in Mathematics.

C. F. RICHARD HOCHDOERFER, Ph.D., Instructor in Romance Languages.

HENRY ANTHONY PAGE, B.S. (E.E.); Instructor in Engineering Mathematics.

MABEL S. REYNOLDS, A.M., Instructor in English Literature.

HENRY C. THOMPSON, JR., B.S. (M.E.), Instructor in Engineering Drawing.

GEORGE W. HULBERT, A.B., Instructor in Debating and Public Speaking.

KENNETH I. WHITE, B.S. (Ch.E.), Instructor in Mechanical Engineering.

FRANK STUBBS, JR., Instructor in Engineering Mathematics.

AGNES WRIGHT, A.B., Instructor in Engineering Mathematics.

NELLIE CLEVELAND, A.B., Instructor in Romance Languages.

ELSIE EAVES, B.S. (C.E.), Instructor in Engineering Mathematics.

MARGUERITE GILLIAM, Instructor in Art.

RUSSELL GIBSON, A.B., Instructor in Geology.

MIRIAM RIEDER, A.B., Instructor in Romance Languages.

E. R. VICKLUND, B.S. (M.E.), Instructor in Mechanical Engineering.

ROSETTA B. WOLCOTT, A.B., Instructor in Romance Languages.

ASSISTANTS

AMY SHAFF, Pd.B., Assistant in Education.

IRMA TARKOFF, A.B., Assistant in History.

EDYTHE THOSEN, B.S., Assistant in Home Economics.

WINIFRED BARTHOLF, A.B., Assistant in Physical Education for Women.

*FRANK C. KENNELLY, M.D., Assistant in Medicine.

ELMERT T. BOYD, M.D., Assistant in Ophthalmology.

WILLIAM M. BANE, M.D., Assistant in Oto-laryngology.

JAMES M. SHIELDS, M.D., Assistant in Ophthalmology.

ALINE ARDOUREL, Technician in Physiology and Pharmacology.

MARION S. FAY, A.B., Technician in Biochemistry.

FRANCES JONES, Technician in Clinical Pathology.

JOSEPHINE JONES, Technician in Anatomy.

IRENE RULE, Assistant in Clinical Pathology.

†FRED E. HAGEN, A.B., Secretary and Registrar.

FRANK H. WOLCOTT, B.S., Secretary of the Board of Regents and Bursar.

C. HENRY SMITH, Ph.B., Librarian.

CHARLES R. BURGER, A.B., Registrar.

ROLAND L. DICKENSHEETS, Assistant Bursar.

EDWARD C. WOLCOTT, Bookkeeper.

* Died December 5, 1920.

† Resigned October 27, 1920.

GRACE L. CRAVEN, A.B., Secretary to the President.

PEARL SMITH, A.B., Secretary to the Dean of the College of Arts and Sciences.

MYRTLE CLARK, Secretary to the Dean of the College of Engineering.

CATHERINE VOWELL, A.B., Secretary of the Department of Education.

ADA B. PORTER, Office Manager, Extension Division.

DOROTHY H. FRY, A.B., Assistant Registrar.

HELEN C. TALBERT, Assistant Recorder.

ETHEL L. STOKES, Assistant in Registrar's Office.

NANCY A. FLEMING, A.B., Assistant in Registrar's Office.

MARJORIE CLEVELAND, A.B., Secretary to the Registrar.

GERTRUDE EATON, Secretary to the Bursar.

IDA ERICKSON, Clerk in Registrar's Office.

EVA DUREE, Faculty Stenographer.

RUTH HENDERSON, Telephone Operator.

JOHN C. BAILAR, Night Telephone Operator.

EMMA A. JACKSON, A.B., Assistant Librarian.

ELIZABETH SELLECK, A.B., Circulation Assistant Librarian.

GRACE BLACK, Assistant in Engineering Library.

CICELY SHERWOOD, Assistant in Law Library.

BLANCHE L. THOMPSON, Circulation Assistant in Library.

CALLA RICHARDSON, Circulation Assistant in Library.

HAZEL BENNETT, Cataloguer in Library.

HELEN GELTZ, Assistant Cataloguer in Library.

HELEN HENRY, Assistant Cataloguer in Library.

JOSEPH KLEMME, Superintendent of Buildings and Grounds.

GENERAL STATEMENT

HISTORY

The University of Colorado was incorporated by an act of the First Territorial Legislature of Colorado, in 1861, and the location fixed at Boulder. The act states that the University was "designated to promote and encourage the diffusion of knowledge, in all the branches of learning, including the scientific, literary, theological, legal and medical departments of instruction." A board of trustees with needful powers was constituted, but never met to transact business. A second act of the year 1870 revived the project of a university at Boulder and reconstituted the board of trustees. In 1872, three public-spirited citizens of Boulder gave the University fifty-two acres of land adjoining the city. In 1874, the Territorial Legislature appropriated \$15,000 to the University, conditioned on the raising by the trustees of an equal amount "by subscription, donation, or otherwise." The trustees having met this condition, the first installment of the appropriation was paid on June 7, 1875. Plans for the erection of a building were then made. In 1875, Congress "set apart and reserved for the use and support of a state university" seventy-two sections of public lands. The Constitution of Colorado, adopted in 1876, made the "University at Boulder" an institution of the State, thus entitling it to the lands appropriated by Congress, and provided for its management and control as follows: "The Board of Regents shall have the general supervision of the University, and the exclusive control and direction of all funds of, and appropriations to, the University." The University is supported by the proceeds of a fractional mill tax and by special appropriations.

The Institution was opened September 5, 1877, with two departments, Preparatory and Normal. After a few years the Normal department was dropped, and in 1907 the Preparatory department was discontinued. The University comprises the following schools and colleges: College of Arts and Sciences, 1878; School of Medicine, 1883; Graduate School, 1892; School of Law, 1892; College of Engineering, 1893; Summer Session, 1904; College of Commerce, 1906; College of Education, 1908; College of Pharmacy, 1911; Uni-

versity Extension Division, 1912; and School of Social and Home Service, 1912, changed to the College of Home Economics and Social Service in 1918, which in turn became the Department of Home Economics in 1920. The Summer Session was increased to a full quarter in 1919.

SITUATION

The University is situated at Boulder, a city of 12,000 inhabitants, about thirty miles north of Denver. The Denver and Inter-urban Railway, with hourly electric service, and the Colorado and Southern and Union Pacific railways connect Boulder and Denver.

BUILDINGS AND GROUNDS

The University campus comprises eighty acres; Stratton Field, northeast of the main campus and about one-quarter mile distant, twelve acres. The University buildings are Heating, Lighting, and Power Plant, Macky Auditorium, Library, Woodbury Hall, Women's Building, Men's Building, Chemistry Annex, President's House, Arts Building, Hale Science Building, Chemistry Building, New Science and Museum Building, Engineering I, Engineering II, Shops Building, Medical Building, Henry S. Denison Memorial Building, Hospital, Nurses' Home, Isolation Hospital, Simon Guggenheim Law Building, Pharmacy Building, and New Arts Building. The Macky Auditorium, the Henry S. Denison Memorial Building, and the Simon Guggenheim Law Building have been erected by private benefaction. A building located at Thirteenth and Welton Streets, Denver, is used for the third and fourth years of the School of Medicine.

LIBRARY

Almost coincident with the founding of the University in 1877 Mr. Charles G. Buckingham, of Boulder, made a generous and substantial gift for the purchase of books. Volumes bought by this fund formed the nucleus of the present collection.

The Library numbers 126,700 volumes, 21,000 pamphlets, and 2,108 maps. Direct access to the shelves is the rule. The main library is open to all during term time from 7:45 a. m. to 10:00 p. m., week days, except Friday and Saturday, when the closing hour is 9:00 p. m. Vacation hours are 9:00 a. m. to 5:00 p. m., week days.

The main library occupies the central portion of the Library Building; 91,592 books are shelved within its walls. Three hundred people may be seated at the different reading tables at one time. A card catalogue numbering upwards of 279,723 cards, giving authors and subjects, directs seekers to books or portions thereof.

Departmental libraries are maintained for Biology, Chemistry, Denison Research Laboratory, Education, Engineering, Geology, Germanic Languages, Law, Mathematics-Physics, Museum, Music, Pharmacy, Training School, and School of Medicine (Denver). Through this system 35,108 volumes upon special subjects are deposited in the building where the particular subject is taught.

Through library extension, books not in actual demand for resident use may be borrowed by citizens of Colorado.

ENTRANCE

Persons intending to enter the University must present their credentials to the Registrar before registration. They should not actually come to the University unless they have been assured in writing by the Registrar that they can be admitted. Certificates from accredited high schools, signed by the proper authorities and indicating the character and extent of the work completed, are accepted. Certificates of the New York State Board of Regents and similar bodies and of the College Entrance Examination Board and credits of a non-accredited high school may be accepted provisionally, full standing being conditional on the subsequent work of the student concerned.

Students seeking advanced standing must present, in addition to a copy of their high school credits signed by the principal of the high school which they attended, an official record of their college or university work, a marked catalogue, and a letter of honorable dismissal from the institution last attended. Real equivalents will be accepted. Advanced standing will not be definitely determined until the student has completed at least one quarter's work in this University.

No statement of the entrance status of an applicant will be given by the Registrar until he has before him complete credentials.

Students are earnestly advised to be present on the opening day

of each quarter. *No student will be allowed to enter later than Wednesday of the opening week of the University.*

An information bureau for the convenience of new students may be found in the Registrar's office in the Macky Auditorium. The rooms of the Christian Associations, and the Women's Building are open for the reception of students during the opening days of the University.

The Registrar's office is open for registration, beginning Friday morning preceding the opening day of the University. All students are requested to register as soon as possible. Students continuing work in the department in which they have been previously enrolled, register first with the Dean and then with the Registrar. New students, and old students transferring from one department to another, register first in the Registrar's office.

REQUIREMENTS FOR ADMISSION

COLLEGE OF ARTS AND SCIENCES, COLLEGE OF COMMERCE,
COLLEGE OF EDUCATION, AND COLLEGE OF MUSIC

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school and *must present fifteen acceptable units*. Applications from candidates who have completed an equivalent amount of work under other conditions will be considered on the merits of each case; in general, such candidates will be expected to pass entrance examinations.

Certificates of moral character may be required from all applicants.

Entrance conditions will not be allowed beyond one unit, and then only upon recommendation of the principal of the school from which the candidate graduated. This applies to all students, including graduates of commercial and other courses wherein some of the subjects are not accepted for University matriculation.

Candidates with fifteen acceptable units, coming from a standard four-year high or preparatory school, who are not graduates, may be admitted on the recommendation of the principal.

A unit course of study is defined as a course covering a school year of not less than thirty-six weeks, with five periods of at least forty-five minutes each per week, two periods of manual training

or laboratory work being equivalent to one period of classroom work. This is equivalent to one hundred and eighty actual "periods" per unit. The fifteen units are equivalent to thirty "points."

The fifteen units should be distributed as follows:

Mathematics—(Algebra and Plane Geometry)...	2
Languages other than English.....	4
English	3
History	2
Science	2
Electives	2

15

Electives may be chosen from the following: Mathematics, 2; Greek, 2; Latin, 2; French, 2; German, 2; Spanish, 2; History, 2; English, 1; Science, 2; Psychology, $\frac{1}{2}$. From the following group, subject to special accrediting by the University, not more than four units: Drawing, 1; Manual Arts, 2; Domestic Science, 2; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Commercial Law, $\frac{1}{2}$; Elementary Economics, $\frac{1}{2}$; Bookkeeping, 1.

Students who do not present the units specified in the above table of requirements for admission, but who do present fifteen acceptable units, will be regularly admitted. Such students will, however, be required to elect in College courses that will fulfill the requirements specified, e. g., if a student enters with but two units of language other than English, then he must include in his college course the equivalent of two units in foreign language. This provision materially widens the scope of electives that will be accepted for College entrance.

1. Half units will not be accepted in Physics and Chemistry.

2. Students who present three units of Greek are required to present only one unit of science, but they must have a total of fifteen units.

3. For the foreign language requirement not more than two languages can be presented. Four units of Latin are preferred, at least two units urgently advised.

Special Students.

Persons of mature years, even if they are unable to meet the entrance requirements, may be admitted to certain courses on the

approval of the departments concerned and the Committee on Courses. In no case will applications be considered from persons who are not twenty-one years of age. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

THE COLLEGE OF ENGINEERING

Candidates for admission are expected to be graduates of a standard four year high or preparatory school, or to have completed a corresponding amount of work under other conditions.

While the regular time for entrance to the College of Engineering is the opening of the autumn quarter, the subjects are repeated in such a manner that students entering at the opening of other quarters may proceed with their work without serious loss of time.

Students may be admitted on the passing of satisfactory examinations or on the presentation of certificates from an accredited high school. Applications from graduates of a non-accredited school will be considered as the merits of each case may warrant; but full standing in such instances shall be conditional upon the subsequent work of the student concerned.

Certificates of moral character may be required from all applicants for admission.

Fifteen units are required for admission. Entrance conditions will not be allowed beyond the equivalent of one unit. For the definition of "unit," see page 28.

The fifteen units should be distributed as follows:

Specified requirements—

Mathematics (Algebra, Plane and Solid Geometry) .	3	
Languages other than English.....	2	
English	3	
History	1	
Physics	1	
		10
Electives	5	
		15

Electives may be chosen from the following: Mathematics, 2; Greek, 3; Latin, 3; French, 3; German, 3; Spanish, 3; History, 2; English, 1; Science, 3; Civics, $\frac{1}{2}$; Economics, $\frac{1}{2}$; Psychology, $\frac{1}{2}$; From the following group, subject to special accrediting by the University, not more than four units: Drawing, 2; Manual Training, 2; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Stenography, 1; Bookkeeping, 1; Commercial Law, $\frac{1}{2}$.

Students who do not present all of the ten specified units but who do present additional units from the elective group sufficient to make a total of fifteen acceptable units may be admitted. However, such students must fulfill the specified requirements by additional work after admission.

If an entrance condition is allowed in mathematics, this subject must be taken during the first and second quarters. If a condition is allowed in languages, other than English, two years may be allowed for completing the requirements. All other entrance conditions must be removed before the beginning of the second year.

Although chemistry is not required for entrance, it is highly desirable that this subject be taken in high school. Half units will not be accepted in either chemistry or physics.

Special Students.

Mature candidates, more than twenty-one years of age, who have had satisfactory preparation in algebra, geometry, physics, and English may be admitted as special students. Special students pursue the regular course and are required to remove their entrance deficiencies within two years. No one may enroll in the College of Engineering as a special student for more than two years except on the approval of the Dean and a vote of the Faculty.

THE GRADUATE SCHOOL

Graduates of any college or scientific school of equal rank with the University of Colorado are admitted upon presentation of certificates of graduation. Students from other institutions should present their credits to the Registrar for rating. See also, page 198.

THE SCHOOL OF MEDICINE

Candidates for admission must fulfill the entrance requirements of the College of Arts and Sciences, as given in detail on page 28, and present in addition ninety term hours (or sixty semester hours)

of collegiate work in a college approved by a recognized accrediting agency. No part of the ninety term hours may be made up of credit in physical education. The following subjects are prescribed: one year of Latin, one year each of college chemistry, physics, biology, a modern foreign language, English, and a course in organic chemistry. It is desirable that work in inorganic chemistry include qualitative or quantitative analysis or both. No entrance conditions are allowed.

Not more than thirty students will be admitted to any class.

Certificates of moral character may be required from all applicants for admission.

Students are earnestly advised to be present at the opening of the session. For the session 1921-1922, no student will be allowed to enter later than Monday, October 3, 1921.

Special Students.

Mature students, not candidates for the degree of M.D., who can give satisfactory evidence of their qualifications to pursue certain advanced courses, may be admitted as special students. No student should come to the University with the expectation of entering as a special student unless he has been previously assured *in writing* by the Registrar that there is a reasonable prospect of his being admitted.

THE SCHOOL OF LAW

Candidates for admission must fulfill the entrance requirements of the College of Arts and Sciences, as given in detail on page 28, including at least two units of Latin; and present in addition, two years of college work estimated at ninety quarter hours, in addition to the required physical education. The college work must include a thorough course in English Political or Constitutional History, and the equivalent of at least nine hours of English Composition and Rhetoric.

All candidates must present certificates of good moral character.

Special Students.

A limited number of persons twenty-one years of age, who cannot satisfy the admission requirements but are qualified to pursue special work, may be admitted to certain courses, though not as candidates for a degree, on approval of the proper committee of the faculty. Special students may be excluded at any time after en-

trance for unsatisfactory class work. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

THE COLLEGE OF PHARMACY

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school and *must present fifteen acceptable units*. Applications from candidates who have completed an equivalent amount of work under other conditions will be considered on the merits of each case; in general, such candidates will be expected to pass entrance examinations.

Certificates of moral character may be required from all applicants.

Entrance conditions will not be allowed beyond one unit and then only upon recommendation of the principal of the school from which the candidate graduated. This applies to all students including graduates of commercial and other courses wherein some of the subjects are not accepted for University matriculation. Entrance conditions must be removed before entering upon the work of the second year.

Candidates with fifteen acceptable units, coming from a standard four-year high or preparatory school, who are not graduates, may be admitted with the consent of the principal.

It is highly important that entrance chemistry be completed before entering the College of Pharmacy. Students conditioned in this subject will probably require one or more additional quarters of residence at the University. Latin is difficult to make up and at least one year should be completed before the student begins his college course.

For definition of "unit," see page 28.

The fifteen units should be distributed as follows:

Mathematics	2
Latin	1
English	3
History	2
Science (one unit of Chemistry required)	2
Electives	5

Electives may be chosen from the following: Mathematics, 2; Greek, 2; Latin, 3; French, 2; German, 2; Spanish, 2; History, 2; English, 1; Science, 2; Psychology, $\frac{1}{2}$. From the following group, subject to special accrediting by the University, not more than four units: Drawing, 1; Manual Arts, 2; Domestic Science, 1; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Elementary Economics, $\frac{1}{2}$; Commercial Law, $\frac{1}{2}$; Bookkeeping, $\frac{1}{2}$.

Half units will not be accepted in Physics and Chemistry.

Special Students.

Persons twenty-one years of age, who cannot satisfy the admission requirements but are qualified to pursue special work, may be admitted to certain courses on approval of the proper committee of the faculty. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

ACCREDITED SCHOOLS

Akron (Washington County)	Central City (Gilpin County Union)	West Side* Cathedral High School
Alamosa*	Cheyenne Wells (Cheyenne County)	Preparatory School (College of Sacred Heart)
Arvada	Colorado Springs: Colorado Springs*	St. Mary's Academy
Aspen*	Cheyenne High School	The Wolcott School
Berthoud	Cripple Creek*	Durango*
Boulder (State Preparatory)*	DeBeque	Eaton*
Breckenridge	Del Norte (Consolidated)	Englewood
Brighton*	Delta*	Flagler
Brush (Union)*	Denver:	Florence
Buena Vista	East Side*	Fort Collins*
Burlington	Manual Training*	Fort Morgan*
Canon City*	North Side*	Fountain
Castle Rock (Douglas County)	South Side*	Fowler
Center (Joint Consolidated)		

* Schools accredited by the North Central Association of Colleges and Secondary Schools.

Fruita (Union)*	La Junta*	Paonia
Georgetown	Lamar (Union)	Pueblo:
Glenwood Springs	La Porte	Centennial
(Garfield County)*	(Cache la Poudre)	(District No. 1)*
Golden*	Las Animas	Central
Grand Junction:	(Bent County)*	(District No. 20)*
Fruitvale	Leadville*	Loretto Academy
Grand Junction*	Littleton	Rifle (Union)
Greeley:	Longmont*	Rocky Ford*
Greeley*	Loretto Heights	Saguache
Industrial Arts	Academy	(Saguache County)
(St. Teachers	Louisville	Salida*
College)	Loveland*	Silverton
Gunnison	Mancos	Steamboat Springs
(Gunnison	Manitou	Sterling
County)*	Meeker (Rio	(Logan County)
Gypsum	Blanco County)	Telluride*
(Eagle County)	Monte Vista	Trinidad*
Holly (Union)	(Consolidated)*	Victor*
Holyoke	Montrose (Montrose	Walsenburg
(Phillips County)	County)*	(Huerfano County)
Hotchkiss	Ouray	Weldona
Idaho Springs	(Ouray County)	Wheatridge
Julesburg	Pagosa Springs	Windsor
(Sedgwick County)	Palisades:	Wray
Lafayette	Mount Lincoln	(Yuma County)
La Jara	Palisade	
(Consolidated)		

* Schools accredited by the North Central Association of Colleges and Secondary Schools.

GRADING AND CREDITS

The standing of students is indicated on a basis of 100, with 70 as a minimum passing grade; conditioned 60-70; not passed below 60.

In the Colleges of Arts and Sciences, Engineering, Pharmacy, in the Graduate School, and in the School of Law, one quarter-hour credit represents one recitation a week throughout one quarter; one hour of credit is given for three hours of laboratory work.

In the Schools of Medicine and Nursing the hours of credit are the actual hours of class attendance.

TUITION AND FEES*

INCIDENTAL FEE.

Annual fee for all students in all the colleges and schools (except the Denver Division of the School of Medicine, \$3.00)\$ 6.00

DIPLOMA FEE (For candidates for all except Graduate degrees) 5.00

COLLEGES OF ARTS AND SCIENCES, COMMERCE, EDUCATION, AND MUSIC.

Matriculation (paid once) 5.00

Tuition, resident, per quarter..... 15.00

Tuition, non-resident, per quarter..... 30.00

Laboratory fees, collected *each quarter* from students who take the particular courses. [These fees include breakage deposits, etc., as well as charges for material.]

Art:

A deposit of \$5.00 is required in all laboratory courses in addition to the fee.

Advanced Color and Design 3.50

Elementary Color and Design 3.50

Lecture Courses:

Freehand Drawing 1.00

The House, its Furnishing and Decoration..... 1.00

Biology:

Animal or Human Physiology (lectures not counted), per credit hour 2.00

Botany, per credit hour75

Entomology, per credit hour75

Microbiology, per credit hour 2.00

Plant Physiology (lectures not counted), per credit hour 1.50

* Special breakage charges may be collected whenever necessary in any laboratory department of the University.

Vertebrate Anatomy, per credit hour.....	\$ 1.50
Zoology, per credit hour	1.00
Chemistry (Lecture hours are not counted):	
There is a breakage deposit of \$5.00 in each course, the unused portion of which is returnable.	
General Inorganic, per credit hour.....	2.75
Organic Preparations and Organic Laboratory, per credit hour.....	2.75
Qualitative Analysis, per credit hour.....	2.75
All other courses, per credit hour.....	1.75
Education:	
Pedagogical library fee for each pedagogical course requiring duplicate books	1.00
Geography:	
Physiography and Geography of North America, for field trips and maps, unused part returnable	5.00
Climatology	1.00
Geology:	
General Geology, per year, 25 per cent, returnable	5.00
Paleontology	1.00
Home Economics:	
Dietetics	5.00
Dressmaking	1.00
Elementary Foods	4.00
Garment Making	1.00
Household Management	2.00
Meal Planning and Serving	5.00
Selection and Preparation of Foods	4.00
Mineralogy:	
Advanced Mineralogy, 25 per cent. returnable...	4.00
Economic Mineralogy, 25 per cent. returnable..	4.00
Fire Assaying, 25 per cent. returnable	10.00
Physics, all laboratory courses, 33 $\frac{1}{3}$ per cent, returnable at end of course	3.00

Psychology:

Experimental Psychology	\$ 1.00
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COLLEGE OF ENGINEERING.

Matriculation (paid once)	5.00
Tuition, resident, per quarter.....	15.00
Tuition, non-resident, per quarter.....	30.00
For laboratory fees in Engineering courses, see page 148.	

GRADUATE SCHOOL.

Matriculation (not required of graduates of this University or of instructors or of graduate students in the Summer Session, paid once)	10.00
Diploma fee	10.00
Tuition, per year, for courses in Ophthalmology.....	100.00

SCHOOL OF MEDICINE.

Tuition, resident, per quarter.....	40.00
Tuition, non-resident, per quarter.....	50.00
Laboratory deposit, per quarter, Boulder Division, for each laboratory course, unused portion returnable	5.00
Immunity, per year, unused part returnable.....	5.00
Operative Surgery	5.00

SCHOOL OF LAW.

Tuition, resident, per quarter.....	20.00
Tuition, non-resident, per quarter.....	30.00

COLLEGE OF PHARMACY.

Matriculation (paid once)	5.00
Tuition, resident, per quarter.....	15.00
Tuition, non-resident, per quarter.....	30.00
Laboratory fees in Pharmacy, per credit hour of laboratory work, 25 per cent. returnable	5.00
Pharmacology, 25 per cent. returnable	10.00
Physiology, 25 per cent. returnable	2.00
For fees in other courses, see Chemistry, Botany, etc.	

SUMMER QUARTER.

For Summer Quarter fees, see page 283.

EXTENSION FEES.

For Extension fees, see pages 294-296.

NOTE—Matriculation fees will not be refunded. Students withdrawing from the University will be charged 25 per cent. of the quarter's tuition and incidental fee for each week for the first two weeks of attendance in any quarter. After that time no refund will be made.

LIVING EXPENSES

The average price of board, room, light, and fuel may be placed at from \$8.00 to \$14.00 a week. Day board in boarding houses and city restaurants varies from \$6.50 to \$9.00 a week. The rent for furnished rooms varies from \$6.00 to \$20.00 a month. Facilities for light housekeeping enable students to lessen expenses materially.

The following table shows the estimated annual expenses of students of the University, excluding clothing and traveling expenses; the expense varies with the course pursued, and also depends, naturally, upon the tastes and habits of the individual.

Board	\$220.00 to \$306.00
Room	40.00 to 170.00
Books, instruments, and stationery.....	20.00 to 100.00
Laundry	9.00 to 36.00
Tuition and fees.....	41.00 to 141.00
Incidentals	25.00 to 75.00
<hr/>	
\$357.00 to \$828.00	

The items for books and fees are high in the second table because they are estimated on the basis of a liberal allowance for students in the Schools of Medicine and Law.

The University has no dormitories and no boarding facilities. See also page 42.

Information concerning the location of rooming and boarding places may be had from the Secretaries of the Christian Associations. Students may also consult the Dean of Women and the Dean of Men.

EMPLOYMENT

While the University does not undertake to find employment for students, yet every assistance possible is given by University officers. The Registrar cooperates with the secretaries of the two Christian Associations, each of which conducts an employment bureau.

No general information can be given concerning employment because the personal capacity, efficiency, and energy of the student concerned and the time which he can devote to outside work are controlling factors.

Prospective students should not come to the University unless they have, at the time of entering, enough money to pay a reasonable part of the first quarter's expenses. A few students are able to earn enough money to pay all of their expenses, but the attempt to do this frequently involves a sacrifice of health or scholarship.

TEACHING FELLOWSHIPS

Twelve University teaching fellowships, each yielding \$300 per annum, are open to graduates of colleges and universities of recognized standing.

SCHOLARSHIPS

HIGH SCHOOL HONOR SCHOLARSHIPS

Scholarships, consisting of a remission of the annual tuition (\$30.00) for four years in the Colleges of Arts and Sciences, Engineering, and Pharmacy, are granted to graduates of four-year high schools of Colorado, upon recommendation of the principal, according to the following plan:

To graduating classes of ten or less, one scholarship to either the first or second in rank; to classes of from ten to twenty-five, one scholarship to one of the first three in rank; to classes of twenty-five to fifty, two scholarships to any of the first six in rank; to classes of fifty to one hundred, three scholarships to any of the first nine in rank; to classes of over one hundred, four scholarships to any of the first twelve in rank.

A scholarship is forfeited whenever the student's yearly average falls below 80 per cent.

THE EDWARD G. STOIBER SCHOLARSHIP

The Edward G. Stoiber Scholarship Fund consists of the principal sum of \$2,000 held in trust, the income of which is given each year to some student in the School of Medicine, designated by the donor or by the officers of the school. This scholarship was established in The Denver and Gross College of Medicine by Mrs. Edward G. Stoiber in memory of the late Edward G. Stoiber. Under the

terms of the merger agreement between The Denver and Gross College and the University of Colorado this fund has been transferred to the Regents, to be held in perpetuity for the purposes specified.

THE GARDINER-ODELL SUMMER SCHOLARSHIP IN BIOLOGY

The late Mrs. Maud Gardiner Odell, B.S., 1894, through her daughter, Dorothy Gardiner, A.B., 1917, left to the University \$1,000 for the Biology Department. The sum is invested in Liberty Bonds and the annual income used for a summer scholarship. The student accepting this scholarship must pursue work in botany or zoology during the summer, and it should be, preferably, work of a nature that can be best done in the summer months. Applications are to be made to the Professor of Biology before April 1 of any year.

PRIZES

THE BENNETT PRIZE

The Bennett prize is awarded annually at Commencement for the best essay on *The Principles of Free Government*. Any student in the University may compete. The prize awarded is the income of the sum of \$400 presented to the Regents of the University by Hon. William J. Bryan, Trustee for Philo Sherman Bennett.

LOAN FUNDS

WOMEN'S LEAGUE LOAN FUND

This fund consists of the principal sum of about \$1,500. Loans are made to women students by the officers of the Women's League.

THE WILLIAM PORTER HERRICK MEMORIAL FUND

This fund, the gift of Mrs. Ursula D. Herrick in memory of her husband, the late William Porter Herrick, consists of the principal sum of \$5,000. The proceeds of this fund are awarded by the Regents of the University "in aid of such worthy and promising undergraduate students of the University, of either sex, as the President of said University may from time to time designate; provided, however, that no student who uses tobacco in any form, or who uses intoxicating liquors of any kind as a beverage shall participate in the benefits of this fund."

THE PHIPPS LOAN FUND

The Phipps Loan Fund of \$5,000 was established in 1918 by Mr. L. C. Phipps and Mr. L. C. Phipps, Jr. Several loans are available from it each year for the benefit of promising students of the second, third, or fourth years of the School of Medicine who are in need of such assistance to enable them to continue their medical education.

UNIVERSITY OF COLORADO LOAN FUND

Through the generosity of Mr. and Mrs. John A. McKenna, the University has been provided with \$1,000 to be loaned to needy students. The awards are made upon recommendation by the President.

UNIVERSITY HOSPITAL

The University Hospital provides hospital advantages for students of the University. A reduction of approximately twenty-five per cent. is made in all hospital rates for students. For further information concerning the University Hospital, see page 253.

SUPERVISION OF STUDENT LIFE

DEAN OF WOMEN

The Dean of Women directs the interests of women students. She regulates social activities for both men and women, and is a member of the faculty committee on student organizations and social life, and is also a member of the committee on discipline. The houses in which women room and board are under her supervision. Students with individual problems should feel free to consult her.

DEAN OF MEN

The Dean of Men is particularly interested in the physical and moral welfare of the men of the University. He is a member of the faculty committee on student organizations and social life, and is also a member of the committee on discipline. He is ready at all times to consult with students about their living conditions, social affairs, or scholarship. Any student who needs help of any kind should feel free to call upon him.

HOMES FOR MEN AND WOMEN

There are no dormitories connected with the University, therefore the students have rooms with private families, in rooming

houses, or in fraternity houses. Meals are served in fraternity houses, and in boarding houses or clubs, but many students prefer to depend upon cafeteries or restaurants. The University Y. M. C. A. maintains a list of available rooms and boarding places for men, and the Y. W. C. A., a list for women. No woman student may live in any house not on the University list accredited by the Dean of Women. Men and women are not allowed to room in the same house.

HEALTH OF MEN AND WOMEN

All first-year men are given thorough physical examinations by the physicians in the department of Physical Education for Men. Each man is advised of his general condition and is required to take a course for one year in physical training unless excused because of disability. Students other than freshmen may consult with the Director of Physical Education and elect courses in corrective gymnastics if they so desire.

The health of women students is under the supervision of the Dean of Women and the Medical Advisor to Women in cooperation with the Department of Physical Education for Women. The Medical Advisor is a woman physician. A thorough medical and physical examination is given to every woman student who enters the University, in order to determine her physical fitness. Any case departing from the normal is followed up, and suitable recommendations made to the student and her parents. The Medical Advisor to Women holds office hours during the week when students may obtain medical advice without charge. In case of illness, whether severe or slight, the student should notify the head of the house, who will report the case to the Department of Physical Education. A series of lectures on personal and social hygiene is required of all freshmen women and is open to all other women students.

In the University Hospital provision is made for the care of the students of the University, both men and women.

WOMEN'S BUILDING

The Women's Building furnishes headquarters for women of the University. Here are the offices of the Dean of Women, and of the Young Women's Christian Association. There is a hall for meetings and entertainments.

WOMEN'S SELF-GOVERNMENT ASSOCIATION

The Women's Self-Government Association was founded in 1921, to supervise and organize the social activities of the women of the University. The Association comprises all women registered in the University. Its functions, in addition to the making and enforcing of all social regulations, are: first, the fostering of school spirit and cooperation among women students; second, the maintenance of a loan fund for the benefit of women students.

VOCATIONAL GUIDANCE

Instruction concerning vocations open to women and concerning University courses leading to such vocations is given during the college year. This instruction is given through lectures by experts, and through personal interviews conducted by the Secretary of the Collegiate Bureau of Occupations, which has been established by the Denver Chapter of the Association of Collegiate Alumnae.

STUDENT ASSEMBLY

The period from 11:00 to 12:00 on Tuesday is set apart for assembly of students. During this period no class or lecture work is conducted. A brief address is given by a member of the faculty or by some speaker invited for the occasion. Attendance is required.

UNIVERSITY PUBLICATIONS

1. Catalogue, containing general information about the University and its separate departments, for which there is a charge of thirty cents.
2. Summer Quarter Announcement.
3. The special announcements of the Colleges of Arts and Sciences, Engineering, Pharmacy, and Music, and the Schools of Medicine, Law, and Nursing.
4. The biennial report of the Regents of the University, recording the progress of the Institution during the previous biennial period, and showing the University budget of receipts and expenditures for the same period.
5. The University of Colorado Studies, published at irregular intervals, and containing original contributions by members of the University faculties.

6. University Extension Bulletins on various subjects of investigation.

7. The Booklet of Views, containing half-tone cuts of the buildings and grounds.

These publications may be obtained by application to the Registrar of the University.

STUDENT AND ALUMNI PUBLICATIONS

The Silver and Gold, a semi-weekly paper, named after the University colors, is published by the Associated Students.

The Coloradoan, an annual, is published annually by the Associated Students.

The Colorado Engineers' Magazine is published quarterly by the students of the College of Engineering.

The Colorado Alumnus, issued monthly, is the official publication of the Associated Alumni.

The Journal of Engineering, a quarterly, is published by the alumni and the students of the College of Engineering.

ASSOCIATED STUDENTS

The student body is organized into an association known as "The Associated Students of the University of Colorado." Through this Association the students act collectively in all their University relations. There are eight executive boards—the Commission, the Men's Athletic Board, the Women's Athletic Board, the Debating Board, the Board of Publications, the Financial Board, the Dramatic Board, and the General Board. The membership of these boards consists of faculty representatives appointed by the President of the University and student members elected by the students. The Commission controls general interests. The General Board has charge of all insignia, interprets the Constitution and proposes and ratifies amendments thereto, and employs and controls the general manager, who has direct control of, and responsibility for, every student enterprise of general interest. The other boards cooperate with the general manager and determine the policy that shall be followed by him in the respective activities indicated by their names. By the payment of a \$6.00 fee any student, alumnus, or member of

the faculties is entitled to admission to all local contests, games, or other events under the Association's auspices. Provision is made in the Constitution for a careful supervision of student funds, for the recall of any officers, and for the initiative and referendum.

ORATORICAL AND DEBATING INTERESTS

All public debates and oratorical contests are held under the management of the Debating Board of the Associated Students. This board consists of three faculty and three student members.

Annual debates are held with four other state universities. The teams for these debates are chosen by contest. The teams and alternates constitute a squad of twenty students, who are under the direct supervision of the instructor in debating.

The A. S. U. C. conducts each year a contest in oratory in which cash prizes are offered.

ATHLETICS

The University aims, primarily, to prescribe under competent supervision, the essential physical training for corrective and developmental purposes, and to stimulate interest in the greatest possible variety of athletics for both men and women, with suitably graded exercises for all students; and, secondarily, to develop highly specialized intercollegiate sports for men. Walking and mountain climbing are popular forms of recreation, and the climate is such as to permit out-of-door exercise during most of the year.

Athletics are placed upon a stable financial foundation under the organization of the Associated Students of the University. General supervision and direction of athletics for men is vested in the Athletic Board, and for women in the Women's Athletic Board. These Boards are each composed of three members of the faculty, appointed by the President of the University, and three student members, who are officials of the Associated Students. The Boards are responsible in all things to the University Senate. All students who participate in athletics are required to take a medical and physical examination.

ATHLETICS FOR MEN

The following branches of organized athletics are offered for men: football, baseball, basketball, soccer football, tennis, boxing,

wrestling, rifle shooting, cross-country running, track and field sports, with intercollegiate, interclass, and interfraternity competition.

The University has a chapter of the national athletic society, Sigma Delta Psi, membership in which is open to men who successfully complete fourteen athletic requirements.

ATHLETICS FOR WOMEN

The following branches of organized athletics are offered for women: archery, basketball, baseball, field hockey, golf, indoor baseball, riding, swimming, soccer, tennis, track, and volleyball. Color tournaments in basketball, baseball, volleyball, and soccer, in which everyone enrolled in the sports participates, are played; after which class squads and finally class teams are chosen. Interclass tournaments are then played. Annual tournaments are held in tennis and archery. A field day of women's athletics is held every spring.

WOMEN'S ATHLETIC ASSOCIATION

Every regularly registered woman student of the University is an associate member of the Women's Athletic Association. The object of the Association is to encourage and control intra-mural athletics for women, thereby furthering health, democracy, and sportsmanship in the student body. The Association cooperates with the Department of Physical Education in the conduct of women's activities. Athletic points for University letters are given for all elective sports, athletic honors, position on class squads, teams, etc.

MUSICAL ORGANIZATIONS

The University Glee and Mandolin Clubs are open to men of the University. Members are selected by competitive examination.

The Women's Glee Club is open to women students. Concerts will be given each year. The club is limited to forty members. Members are selected by competitive examination.

The University Choral Union was established in 1919. The purpose of the organization is the study of the great oratorios, choruses, and cantatas under the direction of the Professor of Music, and the public presentation of them in semi-annual concerts. Through a

committee of faculty members the Choral Union will bring to the University each year artists and musical organizations of the higher type.

The University Orchestra is open to students and members of the faculty desiring to study standard orchestral works.

The University Band furnishes music for the various general University functions.

The Women's Instrumental Club is open to women of the University.

All musical organizations are under the direction or general supervision of the Professor of Music.

RELIGIOUS ORGANIZATIONS

Y. M. C. A. AND Y. W. C. A.

The Young Men's Christian Association and the Young Women's Christian Association have organizations in the University, which are open to members of the faculties and to students of all departments.

Religious services and meetings for the presentation of the moral and religious problems of the day are held by each Association. Classes for the study of the Bible and world-wide missions are conducted by each under competent leadership. In providing frequent social gatherings the Associations render important service.

Resident secretaries are employed by the Associations, and their services are at the disposal of prospective students and their friends. The Associations annually publish a Student and Faculty Directory.

The Y. W. C. A. conducts a board and room register, a book exchange, and a self-help bureau for the women at the opening of each school year. The Y. W. C. A. offices are in the Women's Building and are open at all times to the women of the University.

The Y. M. C. A. has taken over the property and most of the social activities of the Colorado Union, and now occupies the cottage on the campus formerly occupied by the Union, thus assuming a much larger part in the life of the University than ever before. Permanent employment bureau, information bureau, and headquarters for men are maintained in the cottage. Reading, writing, and amusement rooms are open at all times.

Student pastors are maintained on the Campus by several churches for the benefit of the entire student body, as well as for the benefit of the students of their own denominations, working in harmony with the Y. M. C. A. and Y. W. C. A.

NEWMAN SOCIETY

The Newman Society is the local branch of the Catholic Students' Association of America. Membership is open to all Roman Catholic students. Its purposes are both religious and social.

HONOR SOCIETIES

Four honor societies, to which students of high scholastic standing are eligible, have chapters at the University of Colorado. Phi Beta Kappa elects to membership senior students in the College of Arts and Sciences. Sigma Xi offers membership to graduate and undergraduate students who have shown special ability in scientific investigations. Tau Beta Pi is a technical society, selecting members from students in the College of Engineering. Kappa Delta Pi elects to membership students in the College of Education.

STUDENT LITERARY SOCIETIES AND CLUBS

Literary societies and debating clubs are organized and conducted each year by the students.

The Scribblers' Club aims to develop talent in original literary work. Meetings are held every two weeks, the programs consisting entirely of poems, essays, sketches, or stories written by the members. Membership is open to both men and women.

The Athenaeum is organized for the promotion and cultivation of literary and forensic interests. Interpretations, readings, debates, parliamentary practice, orations, and original compositions by the members comprise the programs. Meetings are held weekly and are limited to one hour.

Le Cercle Français is an informal club which meets every two weeks for the purpose of obtaining practice in the French language, which is used exclusively. Plays are read and performed, various games are played, and the work of the classroom is supplemented in every possible way.

El Circulo Español, like Le Cercle Français, meets every other week. The object of the club is the same, to acquire practice in the spoken language and to stimulate interest in things Spanish. The meetings of the two clubs do not conflict.

The Classical Club holds monthly meetings with varied and carefully prepared programs. Its purpose is to stimulate a broader appreciation of ancient life and literature through readings from authors not studied in the classroom, the presenting of scenes from plays, illustrated lectures and so forth. Occasional open meetings offer some of the benefits of the Club to the University at large.

The University of Colorado Menorah Society is a member of the Intercollegiate Menorah Association. Its object is the study and advancement of Jewish culture and ideals. Membership is open to any student of the University interested in these subjects.

The Players' Club is organized for the purpose of promoting dramatic study and gives two or more public presentations during the year.

The Little Theatre is an informal organization of students and faculty for experimental work in play presentation, especially in connection with the courses in drama. A program of one-act plays is given each quarter in the Arts Chapel, which is fitted up with an effective lighting equipment and conventional scenery. Participation in the Little Theatre is open to all students in the University and is determined by tryouts.

The Civil Engineers' Society, the Electrical Engineers' Society (a student branch of the American Institute of Electrical Engineers), and the University of Colorado branch of the American Society of Mechanical Engineers have been organized by the students in the College of Engineering. These societies meet every two weeks. In each original papers on questions of technical interest are presented and discussed. These three societies joined as "The Associated Engineering Societies" publish the Journal of Engineering. The Colorado Engineers' Magazine is published by the students of the College of Engineering.

ASSOCIATED ALUMNI

The Associated Alumni of the University of Colorado is composed of all the graduates of the University of Colorado and of all

other persons who have been in residence at the University of Colorado for at least one year, as members of the faculty, officers, or students. The organization aims to promote the best interests of the University of Colorado and to unite the alumni for mutual advantage. In furtherance of these objects it maintains a permanent secretary in Boulder and publishes a monthly magazine known as "The Colorado Alumnus." The legislative and executive powers are vested in the Alumni Senate, which is made up of senators elected from the alumni at large, and representatives of the nineteen local alumni organizations in the principal towns and cities of Colorado and in many cities in other states. The Alumni Senate meets in Boulder in October on the Annual Home-Coming Day, and in June at Commencement.

TEACHERS APPOINTMENTS OFFICE

The Teachers Appointments Office makes every effort to place students and graduates of the University in the positions for which their general education and professional preparation have fitted them. The office, which is conducted by a secretary under the general supervision of a Senate Committee on Recommendation of Teachers, maintains communication with superintendents and boards of education with reference to vacancies, and invites correspondence from school authorities who are in need of professionally trained teachers. Students of the University who intend to teach, and graduates of the University who are now engaged in teaching and who wish to secure better positions, should register with the secretary of the office.

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COLLEGE OF ARTS AND SCIENCES

FACULTY

- GEORGE NORLIN, Ph.D., LL.D., President of the University.
FRED B. R. HELLEMS, Ph.D., LL.D. Dean; Professor of History of Art.
J. RAYMOND BRACKETT, Ph.D., Professor of Comparative and English Literature, Emeritus.
IRA M. DELONG, A.M., LL.D. Professor of Mathematics.
CHARLES C. AYER, Ph.D., Professor of Romance Languages.
FRANCIS RAMALEY, Ph.D., Professor of Biology.
MELANCTHON F. LIBBY, Ph.D., Professor of Philosophy.
JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.
*RUSSELL D. GEORGE, A.M., Professor of Geology.
*THEODORE D. A. COCKERELL, Sc.D., Professor of Zoology.
*JAMES F. WILLARD, Ph.D., Professor of History.
OLIVER C. LESTER, Ph.D., Dean of the Graduate School; Professor of Physics.
FRANK E. THOMPSON, A.B., Professor of Education.
JUNIUS HENDERSON, A.B., Curator of Museum, Professor of Natural History.
JOHN S. McLUCAS, A.M., Professor of English.
GRACE VAN SWERINGEN BAUR, Ph.D., Professor of Germanic Languages.
MILO G. DERHAM, Ph.D., Director of the Summer Quarter; Professor of Classics.
LAWRENCE W. COLE, Ph.D., Professor of Psychology.
†LORAN D. OSBORN, Ph.D., Director of the Extension Division; Professor of Sociology.
FREDERICK A. BUSHEE, Ph.D., Director of the College of Commerce; Professor of Economics and Sociology.
RALPH D. CRAWFORD, Ph.D., Professor of Mineralogy and Petrology.
ARNOLD J. LIEN, Ph.D., Professor of Political Science.
JAY W. WOODROW, Ph.D., Professor of Physics.
GEORGE F. REYNOLDS, Ph.D., Professor of English Literature.

* On leave of absence, 1920-1921.

† On leave of absence, 1920-1921; Resigned February 15, 1921.

- GEORGE F. REYNOLDS, Ph.D., Professor of English Literature.
- HARRY M. BARRETT, A.M., Litt.D., Director of the College of Education; Professor of School Administration.
- FRANK WILBUR CHACE, Mus. Doc., Director of the College of Music; Professor of Music.
- FRANK E. E. GERMAN, A.B., Dr. ès Sc., Professor of Chemistry.
- C. HENRY SMITH, Ph.B., Librarian; Associate Professor of Bibliography.
- CARL C. ECKHARDT, Ph.D., Associate Professor of History.
- PHILIP G. WORCESTER, A.M., Dean of Men; Associate Professor of Geology.
- GEORGE H. LIGHT, Ph.D., Associate Professor of Mathematics.
- *THOMAS MAITLAND MARSHALL, Ph.D., Associate Professor of History.
- †OSCAR A. RANDOLPH, Ph.D., Associate Professor of Physics.
- S. ANTOINETTE BIGELOW, A.M., Dean of Women; Associate Professor of English Literature.
- PAUL M. DEAN, Ph.D., Associate Professor of Chemistry.
- W. B. PIETENPOL, Ph.D., Associate Professor of Physics.
- ALFRED H. SWEET, Ph.D., Associate Professor of History.
- WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.
- FRANCIS WOLLE, A.M., Assistant Professor of English Literature.
- IRENE P. MCKEEHAN, A.M., Assistant Professor of English.
- ELIZA G. WILKINS, Ph.D., Assistant Professor of Classics.
- EDWIN B. PLACE, Ph.D., Assistant Professor of Romance Languages.
- JOHN W. RENNELL, Assistant Professor of Art.
- CHARLES F. POE, A.M., B.S. (Phar.), Assistant Professor of Chemistry.
- HORACE B. VAN VALKENBURGH, M.S., Assistant Professor of Chemistry.
- ANNA WILLIAMS, A.M., Assistant Professor of Home Economics.
- SEVERANCE BURRAGE, B.S., D.P.H., Ph.D., Assistant Professor of Bacteriology and Hygiene.
- ARTHUR J. TIEJE, Ph.D., Assistant Professor of Geology.
- FULTON H. ANDERSON, Ph.D., Assistant Professor of Philosophy.
- COLIN B. GOODYKOONTZ, Ph.D., Assistant Professor of American History.
- ‡JOE MILLS, Director of Physical Education for Men.

* Resigned September, 1920.

† Died April 11, 1920.

‡ Resigned June, 1920.

- CLARE H. SMALL, A.B., Director of Physical Education for Women.
CHARLES E. KENNEDY, M.D., Director of Physical Education for Men.
ELSIE SEELYE PRATT, M.D., Medical Advisor to Women.
†CLARIBEL KENDALL, A.M., Instructor in Mathematics.
MAUDE E. CRAIG, A.M., Instructor in Latin.
GLADYS C. CURTIS, A.M., Instructor in Education.
OLIN INGRAHAM, A.M., Instructor in Economics.
BESS R. GREEN, A.M., Instructor in Biology.
BENJAMIN D. CORNELL, A.M., Instructor in Chemistry.
EVA M. BAUM, A.B., Instructor in Chemistry.
CLARA HISCOCK BRACE, A.B., Instructor in Education.
HENRY M. SAYRE, Instructor in Accounting.
MAY SNYDER STONE, A.M., Instructor in Romance Languages.
WILLIAM WARREN HOWE, A.B., Instructor in Chemistry.
CLEOPHILE B. DEAN, Ph.D., Instructor in Romance Languages.
EMMETT B. CARMICHAEL, A.B., Instructor in Chemistry.
EDNA L. JOHNSON, A.B., Instructor in Biology.
EDNA DAVIS ROMIG, A.B., Instructor in English.
REBECCA W. VAILLE, A.B., Instructor in English.
LEONA VINCENT, A.B., Instructor in Psychology.
ARTHUR H. WARNER, A.B., B.S. (E.E.), Instructor in Physics.
HERBERT C. HANSON, A.M., Instructor in Biology.
ALEXANDER ELLETT, Instructor in Physics.
BLANCHE SUTHERLAND, A.M., Instructor in English.
ALICE H. SULLIVAN, Ph.D., Instructor in Psychology.
CHARLES M. ELDER, B.S., B.P.E., Instructor in Physical Education
for Men.
CHARLES G. VAVRA, Instructor in Physical Education for Men.
FREDERICK E. BECKER, A.B., Instructor in Biology.
HILDA CARLSON, Instructor in Physical Education for Women.
BLAINE GIBSON, B.J., Director of Publicity; Instructor in Journalism.
WILLIAM H. HILL, A.B., Instructor in Mathematics.
C. F. RICHARD HOCHDOERFER, Ph.D., Instructor in Romance Languages.
MABEL S. REYNOLDS, A.M., Instructor in English Literature.
GEORGE W. HULBERT, A.B., Instructor in Debating and Public Speaking.
NELLIE CLEVELAND, A.B., Instructor in Romance Languages.

† On leave of absence, 1920-1921.

MARGUERITE GILLIAM, Instructor in Art.

RUSSELL GIBSON, A.B., Instructor in Geology.

MIRIAM RIEDER, A.B., Instructor in Romance Languages.

ROSETTA B. WOLCOTT, A.B., Instructor in Romance Languages.

AMY SHAFF, Pd.B., Assistant in Education.

IRMA TARKOFF, A.B., Assistant in History.

EDYTHE THOSEN, B.S., Assistant in Home Economics.

WINIFRED BARTHOLF, A.B., Assistant in Physical Education for
Women.

EQUIPMENT

LABORATORIES

THE PHYSICAL LABORATORY—The Department of Physics occupies the entire first floor, two hundred feet by sixty feet, of the Hale Science Building, with a large modern lecture room on the second floor. The laboratories are large and well supplied with gas, water, direct and alternating current, and the ordinary apparatus for students' use. There are rooms for advanced and research work equipped with special apparatus particularly in light and electricity. A well equipped shop and a department library also add greatly to the efficiency of the department.

CHEMICAL LABORATORY—The basement of the Chemistry Building contains a laboratory for organic and physiological chemistry, a laboratory for food analysis, a laboratory for sanitary water analysis, and the main stock and acid room. On the first floor are the laboratories for general inorganic chemistry and for qualitative analysis, a private laboratory, a laboratory for quantitative analysis, a balance room, a combustion room, and the stock distributing room. The second floor contains the main lecture room seating two hundred and fifty students, the lecture desk being supplied with water, gas, suction pumps, draught, and electric current; on this floor also are a room for the storage of lecture apparatus, a small lecture room seating eighty students, the chemical library, the professor's study and private laboratory, a laboratory for technical and gas analysis, and a laboratory for physical chemistry. Each desk in the various laboratories is equipped with gas, water, and sink, and, in the organic laboratory, with suction pumps. The ventilation is accomplished by the direct-indirect system, assisted by hoods and three-horsepower electric motors and rotary fans. The laboratories for physical and advanced analytical chemistry are equipped with the proper apparatus for thorough experimental work in these subjects. The chemical library, to which students in the laboratories have access at any time, besides reference books on chemical subjects, contains bound files of the chief chemical journals of the world.

BIOLOGICAL LABORATORIES—The Biological Laboratories, located in the Hale Science Building, provide accommodations for work in general biology, zoology, and botany. The equipment is adequate for large undergraduate classes and for a limited number of advanced students. Students have ready access to the museum, herbarium, and department library. A greenhouse for experimental work has recently been erected.

GEOLOGICAL, MINERALOGICAL, AND GEOGRAPHICAL LABORATORIES—A fireproof building houses the departments of Geology, Mineralogy, and Geography.

In order to meet the increasing demand for instruction in geography and physiography, the department has been equipped with the most approved geographical and meteorological apparatus, including most of the instruments used in the U. S. Weather Bureau.

The Department of Geology has good working collections of mineral and rock specimens.

The laboratories are equipped with apparatus for chemical and optical mineralogy and petrology. The equipment for geologic surveying and mapping is practically complete.

The library of the department consists of about 3,000 volumes. It receives all United States and State Geological Survey reports and several important journals and magazines, and contains the recent text and reference books on geology, mineralogy, petrology, geography, and meteorology.

THE PSYCHOLOGICAL LABORATORY—The Psychological Laboratory occupies four rooms on the third floor of the Arts Building. It is well equipped for instruction and training in physiological and experimental psychology. The equipment includes the apparatus necessary for general training courses in psychology and psychological methods, chronographs and recording appliances of various kinds, microscopic and lantern slides of brain sections, models, charts, a complete set of anthropometric instruments, etc. Instruments are provided for typical experiments in psychophysics, sensation, perception, association, reaction and movement. Constant additions are being made to the equipment.

MUSEUM AND CABINETS

THE ZOOLOGICAL COLLECTIONS include vertebrate skeletons and skulls, mounted mammals and study skins, mounted birds and study

skins, eggs and nests, fishes, reptiles, amphibians, crustaceans, insects, echinoderms, corals, sponges, and mollusks. Special importance attaches to the large collection of land, fresh-water, and marine shells, particularly rich in Rocky Mountain and Pacific Coast material; to fresh-water fishes from various parts of the world, including a large series from Colorado; to a good series of western reptiles and amphibians; and to a collection of Colorado butterflies.

THE BOTANICAL COLLECTION consists of a large series of mounted specimens, including seed plants, lichens, fungi and algæ, a display case of tropical seeds and fruits, a representative series of tropical woods and a collection of economic woods of the United States.

THE GUGGENHEIM BIOLOGICAL COLLECTION, purchased with funds placed at the disposal of the Board of Regents by Simon Guggenheim, consists of a fine series of the nests and eggs of birds taken by Mr. Dennis Gale at various altitudes in Colorado, with the accompanying field notes; also of a valuable collection of mounted birds and mammals chiefly from Colorado and adjacent states.

THE MINERALOGICAL AND GEOLOGICAL COLLECTION consists of a large series of typical rocks, minerals, Colorado ores, microscopic sections of rocks, ores and minerals, wooden models of crystals, etc. They include both display and study specimens.

THE GUGGENHEIM MINERAL COLLECTION, the gift of Simon Guggenheim, consists of over 1,000 carefully selected type mineral specimens, which will be kept together for reference. It includes a large number of rare minerals not common in university cabinets, and is an extremely valuable addition to the equipment of the Department of Geology.

THE ETHNOLOGICAL COLLECTIONS consist chiefly of material illustrating the ancient culture of the southwestern United States, particularly the pottery, with many stone implements from Ohio and elsewhere, and ethnological material from China, Japan, and the Philippines. These collections are increasing very rapidly. At present there are twelve cases of display material, besides many large objects not in cabinets.

THE PHOTOGRAPH AND LANTERN SLIDE CABINETS of the Biology and Geology departments and Museum contain several thousand negatives, prints, and lantern slides illustrating various biological and geological phenomena.

THE COIN, CURRENCY, AND POSTAGE STAMPS COLLECTIONS include several thousand specimens, American and foreign, mostly mounted.

THE WAR COLLECTION, just begun, is growing rapidly, and already fills one large cabinet and part of another.

THE PALEONTOLOGICAL COLLECTIONS include great quantities of Colorado marine invertebrates, very large numbers of Tertiary insects and plants from the Lake Beds of Florissant, Colorado, Cretaceous plants from various parts of the state and from Kansas, Paleozoic plants from the coal measures of the eastern states, many thousands of Tertiary and Pleistocene marine invertebrates from the Atlantic and Pacific coasts, a representative collection of Paleozoic invertebrates from the eastern states and Mississippi Valley, many invertebrate fossils from Europe, Panama, and Mexico, and a few important fossil vertebrates, mostly from Colorado.

THE MUSEUM is temporarily located in the Hale Science Building, and contains the paleontological, biological, and ethnological cabinets and part of the mineralogical collections. A large portion of the material hereinbefore described is considered a part of the Museum, though some of the most valuable study collections belong to the Biology and Geology departments, and all of the material in the Museum is intended for the use of the various teaching departments, of the general public, and of specialists working upon lines represented in the collections. More than forty display cases contain suitable material on exhibition, the balance being in drawer cabinets, where it may be examined by students and others interested. Large quantities of duplicates are being collected for class use, research, and exchange purposes. The Museum is at present the depository of the paleontological collections of the Colorado Geological Survey. Several loan collections are also in the cabinets.

ART COLLECTIONS

THE PHILLIPS ART COLLECTION is named from the donors, Mr. and Mrs. Ivers Phillips. It is contained in rooms on the second floor of the east wing of the Macky Auditorium. The masters of painting are represented by Braun autotypes; the works in architecture and sculpture, by large photographic reproductions, casts, and several hundred glass transparencies.

THE FARNSWORTH COLLECTION OF COINS was given to the University by Dr. Wilson A. Farnsworth, of Cæsarea, Cappadocia. It consists of some three hundred and fifty Greek, Roman, Byzantine, mediæval, and modern coins. The collection is on exhibition on the third floor of the Arts Building.

COURSES OF STUDY

INTRODUCTORY

In connection with the requirements for graduation the following general tendencies may be noted. An attempt has been made to map out an intelligent and reasonable group system which shall leave adequate freedom for individual needs and abilities, and, at the same time, prevent undesirable scattering of the student's energies. Provision is made for a combination of certain fundamental subjects and free electives, with special work that shall be more scholarly and more finally valuable both for cultural attainments and scientific efficiency.

Moreover, the plan adapts itself readily to the needs of students who are looking forward to further work in professional and technical schools. Thus, within the College of Arts and Sciences itself provision is made for a College of Commerce with various subdivisions and for a College of Education. By combining work in the College of Arts and Sciences with work in the technical schools the student may attain the degree of A.B., and either the degree of B.S. in the College of Engineering, or the degree of LL.B. in the School of Law, in six years, or the degree of M.D. in the School of Medicine, in seven years. In summary, then, we have a group system so arranged that the first two years in the College of Arts and Sciences provide alike a foundation for more advanced work along University lines and a sound preparation for courses in technical and professional schools. This latter phase of the plan is in accordance with the growing conviction that the college course must do its part in the genuine preparation of students for a vocation, as well as offer every opportunity for the acquiring of a liberal education in the most enlightened sense of the word.

For the purposes of the present group system the various subjects are arranged as follows:

- I. DIVISION OF LETTERS: 6 groups.
- II. DIVISION OF SCIENCE: 7 groups.
- III. DIVISION OF PHILOSOPHY: 3 groups.

IV. DIVISION OF HISTORY AND ECONOMICS: 3 groups.

With the same general purpose in view, but carried out in logical detail, the three following divisions have been established:

V. DIVISION OF COMMERCE, organized as the College of Commerce: 4 groups as follows: 1. Banking; 2. Manufacturing; 3. Journalism; 4. Trade, Transportation, Consular Service.

VI. DIVISION OF EDUCATION, organized as the College of Education; a professional group, and groups corresponding to those of the College of Arts and Sciences.

VII. DIVISION OF HOME ECONOMICS.

VIII. TWO DEGREES. Here may also be noted the arrangement for obtaining two degrees in six and seven years by selecting certain courses in the professional schools. Thus, it is possible to effect any of the following combinations:

- a. A.B. and B.S. in Engineering, six years.
- b. A.B. and LL.B., six years.
- c. A.B. and M.D., seven years.

REQUIREMENTS FOR ADMISSION

See page 28.

REQUIREMENTS FOR GRADUATION

NOTE—The various branches taught in the College of Arts and Sciences are offered in courses of study. A *five-hour course*, as here used, means *five* exercises a week throughout a quarter; a course in which the class meets the instructor *once* a week is a *one-hour course*. Three *five-hour courses* successfully pursued for one quarter would entitle the student to fifteen hours' credit; for one year to *forty-five* hours' credit, and so on. Students regularly take fifteen or sixteen hours per week.

On a day appointed before the beginning of each quarter, all students are required to record their election of studies for that quarter. Credit will be granted for such studies only as have been approved by the Committee on Courses. No student will be permitted to change his course, or drop any study, except by vote of the Committee on Courses.

To attain the degree of Bachelor of Arts, students must complete one hundred and eighty-six hours, according to the schedule printed below.

Attention is called to the following points:

1. Students must take seventy-five hours in some scheduled group, including at least eighteen hours in the two minors with not less than six hours in either minor.

2. Students in the freshman and sophomore years shall take eighteen hours of two subjects of the three groups, Classics, Mathematics, and Science, not less than six hours to be taken in either of the two subjects chosen.

3. All students shall be given a special test in English during the sophomore year, to determine whether additional work in formal English shall be required for graduation.

4. In beginning language courses no credit is given for less than a full year's work.

SCHEDULE

FRESHMAN YEAR

1. ENGLISH LANGUAGE	9 hours*
2. †CLASSICS, MATHEMATICS, OR SCIENCE	9 hours
3. HISTORY OR ECONOMICS	9 hours
4. FREE ELECTIVES	15-18 hours
PHYSICAL EDUCATION	3 hours
<hr/>	
45-48 hours	

SOPHOMORE YEAR

5. †CLASSICS, MATHEMATICS, OR SCIENCE	9 hours
6. PSYCHOLOGY OR PHILOSOPHY	9 hours
7. GROUP ELECTIVES (Major or Minor)	15 hours
8. FREE ELECTIVES	9-12 hours
PHYSICAL EDUCATION	3 hours
<hr/>	
45-48 hours	

* A written examination in English will be given to each student in the sophomore year, and those found deficient will be required to take additional courses in formal English.

† Students in the freshman and sophomore years shall take eighteen hours of two subjects of the three groups, Classics, Mathematics, and Science, not less than six hours to be taken in either of the two subjects chosen.

JUNIOR YEAR

10. GROUP ELECTIVES (Major or Minor)30-25 hours
 11. FREE ELECTIVES15-20 hours

 45 hours

SENIOR YEAR

12. GROUP ELECTIVES (Major or Minor)30-25 hours
 13. FREE ELECTIVES15-20 hours

 45 hours

GROUPS

I. DIVISION OF LETTERS

GROUP (a) <i>Major</i> , Latin;	<i>Minors</i> ,	{ Greek or French, European History.
GROUP (b) <i>Major</i> , Greek;	<i>Minors</i> ,	{ Latin, English Literature or Philosophy.
GROUP (c) <i>Major</i> , { Germanic Languages;	<i>Minors</i> ,	{ History, Latin or French.
GROUP (d) <i>Major</i> , { Romance Languages;	<i>Minors</i> ,	{ Latin, German or History.
GROUP (e) <i>Major</i> , { English Literature;	<i>Minors</i> ,	{ Two of the following: History, English Language, Classics.
GROUP (f) <i>Major</i> , { English Language;	<i>Minors</i> ,	{ English Literature, English History.

II. DIVISION OF SCIENCES

GROUP (g), <i>Major</i> , Mathematics;	<i>Minors</i> ,	{ Physics, Astronomy.
GROUP (h) <i>Major</i> , Chemistry;	<i>Minors</i> ,	{ Physics, Mathematics.
GROUP (i) <i>Major</i> , Physics;	<i>Minors</i> ,	{ Mathematics, Chemistry.
GROUP (j) <i>Major</i> , Botany;	<i>Minors</i> ,	{ Zoology, Chemistry or Geology.

GROUP (k) Major, Zoology;	Minors,	{ Botany, Chemistry.
GROUP (l) Major, Geology;	Minors,	{ Chemistry, Mineralogy.
GROUP (m) Major, Mineralogy;	Minors,	{ Geology, Chemistry.

III. DIVISION OF PHILOSOPHY

GROUP (n) Major, Philosophy;	Minors,	{ Psychology, Biology.
GROUP (o) Major, Psychology;	Minors,	{ Philosophy, Biology.
GROUP (p) Major, Education;	Minors,	{ Psychology, Biology.

IV. DIVISION OF HISTORY AND ECONOMICS

GROUP (q) Major, History;	Minor,	Economics.
GROUP (r) Major, Economics;	Minors,	{ History, Sociology.
GROUP (s) Major, Sociology;	Minors,	{ Biology, Psychology.

To attain the degree Bachelor of Science in Home Economics students must complete one hundred and eighty-six hours, according to the schedule printed below:

FRESHMAN YEAR

AUTUMN QUARTER		WINTER QUARTER	
English	3	English	3
Inorganic Chemistry	5	Inorganic Chemistry	5
*Elementary Foods	3	*Elementary Clothing	3
Electives	4	Electives	4
Physical Education	1	Physical Education	1
	16		16

SPRING QUARTER

English	3
Inorganic Chemistry	5
*Elementary Clothing	3
Electives	4
Physical Education	1
	16

* Required of students who do not offer household science or art for entrance.

SOPHOMORE YEAR

AUTUMN QUARTER

Organic Chemistry	3
Selection and Preparation of Foods.....	3
†Economic Botany	3
Psychology	3
Art and Design	3
Physical Education	1
	<hr/>
	16

WINTER QUARTER

Organic Chemistry	3
Selection and Preparation of Foods.....	3
Psychology	3
Art and Design	3
Physical Education	1
Bacteriology	4
	<hr/>
	17

SPRING QUARTER

Organic Chemistry	3
Selection and Preparation of Foods.....	3
Textiles	3
Psychology	3
Electives	2
Physical Education	1
	<hr/>
	15

† One of the following courses may be accepted as substitution for Economic Botany: College Botany, College Zoology, or Organic Chemistry Laboratory.

JUNIOR YEAR

AUTUMN QUARTER

Biochemistry	5
The House.....	2
Physiology	2
Advanced Clothing	2
Electives	3
	<hr/>
	15

WINTER QUARTER

The House.....	2
Physiology	2
Advanced Clothing	3
Electives	8
	<hr/>
	15

SPRING QUARTER

Meal Planning and Serving.....	3
The House.....	2
Advanced Clothing	3
Electives	7
	<hr/>
	15

SENIOR YEAR

AUTUMN QUARTER

Household Management	3
Sociology	2
Nutrition I	4
Electives	6
	<hr/>
	15

WINTER QUARTER

Household Management	3
Sociology	2
Nutrition II	4
Electives	6
	<hr/>
	15

SPRING QUARTER

Sociology	2
Care of the Child.....	2
Electives	10
	<hr/>
	14

COMBINED COURSE FOR B.S. AND NURSE'S DIPLOMA (five years)

The work consists of three years in the College of Arts and Sciences followed by two years in the University of Colorado Hospital.

This course is offered as a contribution to the movement to place the standards of the nursing profession on a thoroughly high level, and to enlarge the possibilities for young women interested in this general line of work. Students who complete the course should find themselves generously equipped for various positions of responsibility in hospitals, asylums, city and state departments of health, school inspection work, and similar fields.

Following is the work to be done in the College of Arts and Sciences arranged for three academic years, each having three quarters.

Students preparing themselves to become school nurses should elect three hours of education each quarter of their junior year.

FRESHMAN YEAR

English	9
Inorganic Chemistry	15
History or Economics.....	9
Physical Education	3
Electives	9
	<hr/>
	45

SOPHOMORE YEAR

Foreign Language	15
English Literature	6 or 9
Organic Chemistry	9
Biology	8
Sanitary Science and Public Health.....	2
Biochemistry	5
Physical Education	3
	<hr/>

48 or 51

JUNIOR YEAR

Psychology	9
Social Problems	6
Nutrition	8
Anatomy, Physiology, and Hygiene.....	6
Bacteriology	4
Electives	15
	<hr/>
	48

ORDER OF DESCRIPTION OF COURSES

The various courses offered in the College of Arts and Sciences are described in the following order:

Art.	History.
Biology.	Home Economics.
Chemistry.	Library Science and Practice.
Classics.	Mathematics.
Economics, Sociology, and Political Science.	Music.
Education.	Philosophy, Logic, and Ethics.
English Language.	Physical Education.
English Literature.	Physics.
Geology, Mineralogy, and Geography.	Psychology.
Germanic Languages and Literatures.	Romance Languages— French, Spanish, Italian.
	Electives in the Professional Schools.

DESCRIPTION OF COURSES*

ART

1. **FREEHAND DRAWING.** Three quarters. 2 h. Open only to students who wish to proceed to advanced work in the Department.

An introductory course.

2. **COLOR AND DESIGN.** Three quarters. 3 h. Open on consultation. Conventionalization of natural forms; applied design; the full use of color and all techniques will be developed.

Students in this course will be required to attend a series of lectures on color, historic and modern ornament, lettering, etc., of one hour a week throughout the year in addition to the other studies.

Prerequisite: Freehand Drawing.

3. **ADVANCED COLOR AND DESIGN.** Three quarters. 2 h. Open on consultation.

The use of natural forms and the human figure, leading to ornamental illustrating for publications, mural decoration, etc.

Prerequisite: Elementary Color and Design.

4. **THE HOUSE: ITS FURNISHINGS AND DECORATION.** Three quarters. 2 h.

Exercises in the handling of color; color drawings of furnishings and interiors; drawings of floor plans, elevations, and details; study of the periods in architecture and in interiors and furnishings; study of modern interior decoration and furniture; the use of household paints and varnishes; dyeing and dye stuffs.

Students in this course will be required to attend a series of lectures on color, historic and modern ornament, etc., of one hour a week throughout the year in addition to the other studies.

* Courses are given as taught in the year 1920-1921 and some announcements for 1921-22. The same courses will presumably be offered in subsequent years, but are subject to change by the Faculty.

5. MODERN PAINTING. One quarter. 2 h.

A detailed discussion of the purposes of modern paintings and of modern schools and the paintings of the future.

The lecture on color is open to students in this course, but it is not required and no credit will be given.

6. GREEK ART. One quarter. 2 h.

An introductory course in Greek architecture and sculpture. The subject is treated from the historical side and the course leads up to a study of most of the acknowledged masterpieces in the field.

7. ROMAN AND MEDIEVAL ART. One quarter. 2 h.

A continuation of Greek Art and a preparation for Renaissance Art.

8. RENAISSANCE ART. One quarter. 2 h.

The course deals primarily with the painting and sculpture of the great period, but some attention will be paid to the minor arts. The historical development will be kept constantly in view.

BIOLOGY

I. GENERAL BIOLOGY

1. SANITARY SCIENCE. Autumn quarter. 2 h. Juniors or seniors electing this course will be required to do extra work.

Recitations and lectures.

Structure and life activities of bacteria, yeasts, and protozoa, especially as related to disease production. Problems of infection and immunity, antitoxins, vaccines, etc. Control of disease in school, home, and city.

2. HYGIENE. Winter quarter. 2 h. Juniors and seniors electing this course will be required to do extra work.

The human body viewed as a mechanism; the effective operation of that mechanism; individual and family health.

3. HISTORY OF BIOLOGY. Autumn quarter. 2 h.

The progress of zoology and botany from the earliest times to the present; history of biological investigation; development of established theories; biology and human progress.

Prerequisite: 9 hours of zoology or botany.

4. **PRINCIPLES OF HEREDITY.** Autumn and winter quarters. 2 h.
Primarily for juniors and seniors.

Recent progress in the study of heredity in plants and animals; human heredity; eugenics.

Prerequisite: College Zoology, 6 h.

5. **PLANKTONOLOGY.**

Biology and economic relations of the microscopic plants and animals found in ponds, streams, and potable waters.

6. **MICROBIOLOGY.** 4 h. Chiefly a laboratory course.

Structure and cultural features of molds, yeasts, bacteria, and protozoa with relation to the household, to agriculture, and to industries; fermentation; decay.

Prerequisites: Sanitary Science and Survey of Plant Kingdom.

7. **TEACHERS' COURSE IN BIOLOGY.** 2 h. Open on consultation.

The planning and teaching of courses in botany, elementary agriculture, and nature study in high schools and grades.

8. **NUTRITIONAL PHYSIOLOGY.** Spring quarter. 2 h.

Prerequisite: A college course in either hygiene or physiology.

9. **GENETICS.** Spring quarter. 3 h.

Prerequisite: Principles of Heredity.

For courses for graduates only, see page 209.

NOTE—The more fundamental courses are offered every year; others are given when there is sufficient demand.

II. BOTANY

1. **COLLEGE BOTANY.** Autumn quarter. M. W. F. Three or more sections. 3 h.

A brief introduction to the structure and activities of plants.

This course is repeated in the winter, spring, and summer quarters.

2. **ECONOMIC BOTANY.** Winter quarter. Repeated in spring quarter. M. W. F. 3 h.

History and origin of cultivated plants. Botany of the world's food supply. Grains and other foods; microscopy of flours, meals, breads, starches, spices; textiles; raw materials of commerce.

3. SURVEY OF PLANT KINGDOM. Winter quarter. Repeated in spring quarter. M. W. F. Two or more sections. 3 h. Survey of the plant kingdom from alga to seed plant.
Prerequisite: College Botany.
4. ADVANCED ECONOMIC BOTANY. Spring quarter. 3 h. Intended primarily for students of Pharmacy, but open to others who have had 6 hours of botany and 10 hours of chemistry.
5. PLANT TAXONOMY. Three quarters. 6 hours of laboratory work with additional quiz hour once a week. 3 h.
Classification of spermatophytes. Representative plant families in Colorado.
Prerequisite: Forest Botany.
6. PLANT PHYSIOLOGY. Autumn and winter quarters. 3 h.
Prerequisites: 9 hours of botany; also inorganic chemistry.
7. PLANT ECOLOGY. Autumn and winter quarters. 3 h.
Structure and behavior of plants in relation to factors of the environment, as climate, water, light, soil, etc. Plant associations, consociations, societies. Successions, especially as exhibited in Colorado. Quadrat studies. Use of field instruments.
Prerequisite: Survey of Plant Kingdom.
8. FOREST BOTANY. Autumn and winter quarters. 3 h.
Ecological and taxonomic study of trees. The forests of North America and other continents. Forest associations.
Prerequisite: Survey of Plant Kingdom.
9. ADVANCED INDUSTRIAL BOTANY. Spring quarter. 2 h. Not open to freshmen.
Lectures and reference work without laboratory.
Recent progress in production and culture of economic plants; new introductions of exotic species; work of government departments.
Prerequisite: Economic Botany.

10. LOCAL FLORA. Spring quarter. 3 h.
Prerequisite: Forest Botany.
11. PLANT ANATOMY. Spring quarter. 3 h.
Tissues and tissue systems of spermatophytes. Vascular anatomy as related to phylogeny. Botanical microtechnique.
12. MYCOLOGY. Three quarters. 3 h.
13. ADVANCED PLANT MORPHOLOGY. Autumn, winter, and spring quarters. 3 h.
Prerequisite: Survey of Plant Kingdom.
For courses for graduates only, see page 209.

NOTE—The more fundamental courses are offered every year; others are given when there is sufficient demand.

III. ZOOLOGY

1. COLLEGE ZOOLOGY.* Three quarters. Lectures, Tu. Th. 1:00; Laboratory, Tu. Th. 8:00-10:00 or Tu. Th. 2:00-4:00. 3 h.
The course is also begun in the winter quarter and continued through spring and autumn quarters.
An introduction to the entire field of zoology. Autumn quarter: Protozoa to Crustacea. Winter quarter: Insecta to Chordata. Spring quarter: variation, geographical distribution, elements of comparative morphology, histology, embryology, paleontology.
2. VERTEBRATE ANATOMY. Winter quarter. Tu. Th. 8:00-11:00, with additional quiz hour once a week. 3 h.
Prerequisite: 9 hours of zoology.
3. PHYSIOLOGY. Autumn and winter quarters. 2 h.
Recitations, demonstrations, and laboratory work.
Prerequisites: Inorganic Chemistry, also College Zoology or College Botany.

*Pre-medical students should elect College Zoology, three quarters, and, in addition, six hours of some advanced zoology or else a course in botany to make a total of fifteen hours biology. Physiology, sanitary science, and hygiene should not be taken as a part of the fifteen hours biology required for entrance to the School of Medicine.

4. ECONOMIC ZOOLOGY. Spring quarter. 3 h.

Animals and animal products useful to man; foods, textiles, leather, fats, drugs, etc. Insect-destroying birds. Origin and improvement of domestic animals.

Prerequisite: 6 hours College Zoology.

5. COMPARATIVE MORPHOLOGY. Autumn and winter quarters. 3 h.

An advanced course for students who have completed at least 6 hours of zoology.

6. ANIMAL ECOLOGY. Spring quarter. 3 h.

A study of animals as related to environment. Animal communities. Areal zoology.

7. CYTOLOGY. Autumn and winter quarters. M.W.F. 3 h. Two hours each day with additional quiz hour once a week.

Prerequisite: 9 hours of zoology.

8. GENERAL ENTOMOLOGY. Three quarters. M.W.F. 3 h.

The elements of entomology including the classification and life histories of insects, with discussion of the biological principles, illustrated by insects.

Prerequisite: a course in zoology or biology.

9. ORNITHOLOGY. Summer quarter.

A general account of the birds of the world with special reference to economic forms and Colorado species. Lectures. with supplementary museum and laboratory work and some field work.

For courses for graduate students, see page 209.

NOTE—The more fundamental courses are offered every year; others are given when there is sufficient demand.

CHEMISTRY

1. GENERAL INORGANIC CHEMISTRY.* Three quarters. M. W. F. 10:00. 3 h. Those electing Course 1 must also elect Course 2.

A course of lectures dealing with the laws and theories of chemistry, together with a study of the elements and their most important compounds.

* All students entering the Department of Chemistry and not presenting university credits in general inorganic chemistry must take courses 1 and 2.

2. GENERAL INORGANIC CHEMISTRY.* Three quarters. M. Tu. W. Th. 8:00 or 1:00. 2 h.

This is a laboratory course designed to accompany Course 1.

3. ADVANCED INORGANIC CHEMISTRY. Three quarters. Tu. Th. 10:00. 2 h. Open to seniors and graduates.

A systematic study of the elements based on the periodic classification.

4. ELEMENTARY QUALITATIVE ANALYSIS. Three quarters. Lectures, M. 11:00; Laboratory, Tu. Th. 9:00 or 1:00. 3 h.

A course in the separation and identification of the more common bases and acids. The lectures deal with the chemistry of the analytical reactions, special emphasis being given to the application of mass-action, ion-product, etc. The course must be continued through at least two quarters.

Prerequisite: Inorganic Chemistry.

5. ADVANCED QUALITATIVE ANALYSIS. Autumn and winter quarters. Lectures, M. 10:00; Laboratory, M. W. F. 9:00 or 1:00. 3 h.

The course consists of the study of the rare elements, their separation and identification.

Prerequisite: Course 4.

6. QUANTITATIVE ANALYSIS. Three quarters. Lectures, Th. 11:00; Laboratory, M. W. F. 9:00 or 1:00. 4 h.

Elementary gravimetric and volumetric analysis, chemical calculations, etc. This course must be continued through at least two quarters.

Prerequisite: Course 4, or may be taken with Course 4.

7. ORE ANALYSIS. Spring quarter. Lectures, W. 9:00; Laboratory, M. W. F. 9:00 or 1:00. 4 h.

A course in the analysis of ores, slags, etc., by the technical methods in use in mills and smelters.

Prerequisites: Mineralogy and Fire Assaying.

* All students entering the Department of Chemistry and not presenting university credits in general inorganic chemistry must take courses 1 and 2.

8. ANALYSIS OF IRON AND STEEL. Spring quarter. 3 h.

A practical course in the laboratory methods in use in the leading steel works.

Prerequisite: Course 6.

9. GAS ANALYSIS. Spring quarter. 2 h.

A course in the methods for determining the constituents of gas mixtures, especially as applied to illuminating gas, mine and furnace gases.

Prerequisite: Course 6.

10. ELEMENTARY ORGANIC ANALYSIS. Winter and spring quarters. 3 h.

A course in the separation and identification of pure organic compounds and mixtures, including ultimate organic analysis by combustion, etc.

Prerequisites: Courses 4 and 13.

11. SANITARY WATER ANALYSIS. Any quarter. 8:00 or 1:00. 2 h.

A course in the chemical and bacteriological examination of water with regard to its use for drinking purposes.

Prerequisite: Course 4.

12. MINERAL WATER ANALYSIS. Any quarter. 8:00 or 1:00. 2 h.

A course in the analytical methods used in the determination of the mineral and gaseous constituents of natural waters.

Prerequisite: Course 6, autumn quarter.

13. ORGANIC CHEMISTRY. Three quarters. M. W. F. 9:00. 3 h. Lectures.

A study of the methods of preparation and the properties of the more important organic compounds. Special stress is laid upon the theories underlying the subject and the proofs of the constitution of most of the substances studied.

14. ORGANIC CHEMISTRY. Winter and spring quarters. Time to be arranged. 2 h. Laboratory.

A laboratory course supplementing Course 13 designed to give practice in organic laboratory methods.

This course should be taken with Course 13.

15. PHYSICAL CHEMISTRY. Three quarters. M.W.F. 11:00. 3 h.

A lecture course presenting the conceptions of the modern physico-chemical theories concerning the states of aggregation of matter, solutions, thermo-chemistry, equilibria, chemical kinetics, electro-chemistry, and actino-chemistry.

Prerequisite: To be preceded or accompanied by Differential and Integral Calculus.

16. PHYSICAL CHEMISTRY. Three quarters. M. F. 1:00. 2 h.

A laboratory course supplementing Course 15, consisting of the determinations of densities, molecular weights, thermo-chemical and optical constants, conductivity of solutions, electromotive force, transference numbers, viscosity, surface tension, electro-chemical equivalents, transition points, etc.

Prerequisite: Either to accompany or follow Course 15.

17. ELECTRO-CHEMICAL ANALYSIS. Winter quarter. 1:00. 2 h.

Laboratory practice in the determination and separation of the common metals by electrolytic methods.

Prerequisite: Course 4.

18. FOOD ANALYSIS. Autumn and winter quarters. 8:00 or 1:00. 3 h.

Lectures and laboratory.

A detailed course giving practice in the official and standard methods for the analysis of foods and the detection of adulterants.

Prerequisites: Courses 6 and 13.

19. DRUG ASSAYING: PHARMACOPOEIAL TESTING. Autumn and winter quarters. Any three periods. 8:00 or 1:00. 3 h.

A laboratory course giving practice in the official and standard methods for the identification, determination of purity, detection of adulterants, and assaying of official drugs.

Prerequisites: Courses 6 and 13.

20. DRUG ASSAYING: ORGANIC ANALYSIS. Autumn and winter quarters. Three periods. 8:00 or 1:00. 3 h.

A laboratory course in the qualitative and quantitative analysis of pharmaceutical and commercial organic products, such as alcohol, ethers, esters, glycerine, soaps, formalin, organic acids, etc.

Prerequisites: Courses 6 and 13.

21. DRUG ASSAYING: ALKALOIDAL ASSAYING. Winter or spring quarter. Any period. 8:00 or 1:00. 3 or 5 h.
Lecture and laboratory course.
A course consisting of all the most important alkaloidal assays and the separation and detection of the alkaloids.
Prerequisites: Courses 4 and 13.
22. ADVANCED FOOD ANALYSIS. Any quarter. Any three periods. 8:00 or 1:00. 3 h.
An advanced laboratory course in the official and standard methods of food analysis.
Prerequisite: Course 18.
23. HISTORY OF CHEMISTRY. Winter quarter. Th. 11:00. 1 h.
Prerequisites: Courses 1, 2, 4, 5.
24. ELEMENTARY BIOCHEMISTRY (PHYSIOLOGICAL CHEMISTRY).^{*}
Spring quarter. Lectures, M. W. F. 9:00; Laboratory, M. W. F. 10:00-12:00. 5 h.
This course is designed primarily for students taking the combined College and Hospital course for the B.S. degree or the course in Home Economics.
Prerequisite: Course 13.
25. BIOCHEMISTRY. (PHYSIOLOGICAL CHEMISTRY).^{*} Autumn quarter. Daily (except Saturday). 8:00-12:00. 10 h. Open only to advanced students of chemistry.
Lectures, recitations, and laboratory exercises on the chemistry of carbohydrates, fats, and proteins; of salivary, gastric, pancreatic, and intestinal digestion; of bile, putrefaction products, feces; of epithelial, connective, muscular, and nervous tissues; of blood, milk, and urine. Considerable time is devoted to practical qualitative and quantitative methods of analysis of urine, milk, stomach contents, and blood, and to practical work in metabolism.
Prerequisites: Course 13, and either 14 or 24.
26. INDUSTRIAL CHEMISTRY. Spring quarter. Time to be arranged. 4 h.
A lecture course on the principal chemical industries.

^{*} Courses 24 and 25 are given in the Department of Biochemistry, School of Medicine.

27. CHEMICAL ENGINEERING MATERIALS. Winter quarter. Time to be arranged. 2 h.

A course consisting of the study of such materials as iron and steel, non-ferrous alloys, refractories, building materials, paint, rubber, cement, etc.

Prerequisites: Courses 1, 2, 3, and 4.

28. LABORATORY PRACTICE IN ORGANIC PREPARATIONS. Winter or spring quarters. M. W. F. 1:00. 3 h.

A laboratory course in the preparation of typical aliphatic and aromatic compounds.

Prerequisites: Courses 13 and 14.

CLASSICS

GREEK

1. ELEMENTARY COURSE. Three quarters. 8:00. 5 h.
First year book; Anabasis; Homer, Iliad.
2. HOMER, ILIAD AND ODYSSEY. Three quarters. 9:00 3 h.
Prerequisite: equivalent of Course 1.
3. LYSIAS AND DEMOSTHENES. Three quarters. 9:00. 2 h.
Selected orations.
4. PLATO, APOLOGY AND CRITO. Autumn quarter. 1:00. 3 h.
5. TRAGEDY. Winter and spring quarters. 11:00. 3 h.
Selected plays.
6. GREEK HISTORIANS. Autumn quarter. 11:00. 3 h.
Selections from Herodotus and Thucydides.
7. PLATO. Winter quarter. 2:00. 3 h.
Interpretation of the Republic with lectures on Platonism.
8. COMEDY. Spring quarter. 9:00. 3 h.
Aristophanes, Clouds and Frogs.
9. LYRIC POETS. Winter quarter. 8:00. 3 h.
Early lyric poets with introduction to Pindar and Bacchylides.
10. PASTORAL POETRY. Spring quarter. 3:00. 2 h.
Theocritus, Bion, and Moschus.

11. PROSE COMPOSITION. Spring quarter. 3:00. 2 h.
12. GREEK POETRY IN ENGLISH. Three quarters. 3:00. 3 h.
13. CLASSICAL MYTHOLOGY. Autumn and winter quarters. 2:00.
2 h.
14. GREEK HISTORY. Winter and spring quarters. 8:00. 2 h.
Down to the Roman period.

LATIN

1. ELEMENTARY COURSE. Three quarters. 1:00. 5 h.
First year book; grammar; Caesar's Gallic War.
2. CICERO AND VIRGIL. Three quarters. 8:00. 5 h. For students
who enter with two units of Latin, or have taken
Course 1.
Selected orations of Cicero; Latin writing, drill in forms
and syntax. The Aeneid, Books I-VI; drill in reading the Latin
hexameter, case and verb constructions, and poetic usages.
3. CICERO, DE SENECTUTE; SELECTIONS FROM LIVY; TERENCE, PHORMIO. Three quarters. 10:00. 3 h.
Latin grammar, prose composition.
4. OVID, SELECTIONS; HORACE, ODES AND EPODES.
Three quarters. 10:00. 2 h.
5. LATIN PROSE. Autumn quarter. 8:00. 3 h.
6. TACITUS. Autumn quarter. 9:00. 3 h.
Tacitus, Agricola and Germania; the spread of Roman influence in the west; early civilization of Western Europe.
7. LATIN PROSE AND SIGHT TRANSLATION. Winter quarter. 9:00.
3 h.
8. LATIN LITERATURE. Three quarters. 2:00. 3 h.
The outlines of the literature with its historical setting.
The course is based on Latin selections.
9. ROMAN HISTORY. Autumn quarter. 10:00. 3 h.
Lectures and reports on sources.
Outlines of Roman history; the history of Rome from its
foundation to 476 A. D., based on Latin extracts.

10. ROMAN SATIRE. Spring quarter. 8:00. 3 h.

Horace, Juvenal, Persius; the origin and development of satire with a critical estimate of the historical value of the contents.

11. TACITUS AND PLINY. Winter quarter. 8:00. 2 h.

Tacitus, *Histories*, book I; Pliny, *Letters*, book X; introduction to the prose of the Silver Latinity; Rome and the provinces.

12. ROMAN COMEDY. Winter quarter. 9:00. 3 h.

Terence and Plautus, six plays; a comparative study of these authors, from the literary as well as the morphological side.

13. RHETORICAL TREATISES. Three quarters. 5 h.

Horace, *Ars Poetica*; Cicero, *De Oratore*, *Brutus*; Quintilian, book X; Tacitus, *Dialogus de Oratoribus*; principles of literary criticism; the debt of the above writers to Greek sources.

14. CATULLUS. Autumn quarter. 11:00. 2 h.

15. ROMAN PHILOSOPHY. Three quarters. 5 h.

Lucretius, *De Rerum Natura*; Cicero, *De Natura Deorum*, *De Finibus* and *Tusculanae*; Seneca, selections; the place of Roman philosophy in the history of philosophy; the part played by these writers individually.

16. ROMAN HISTORY. 63 B. C. to 37 A. D. Spring quarter. 3 h.

Sallust, *Catiline*; Cicero, *Letters* (Abbott's selections); Tacitus, *Annals*, books I-VI; Velleius Paterculus, book II.

17. TIBULLUS AND PROPERTIUS. Winter quarter. 2 h.

18. MARTIAL AND PLINY. 2 h.

Selected epigrams and letters; private life under the early Roman Empire.

19. LATIN LITERATURE IN ENGLISH. Autumn and winter quarters. 3 h.

The course is based on standard translations and is intended for students not taking Latin.

20. LIVY. 2 h. For advanced students.
Book I as a basis for the consideration of the problems of early Roman history.
21. SUETONIUS. 2 h.
Selected lives; introduction to the history of the Empire.
22. TEACHERS' TRAINING COURSE. Winter quarter. 3 h. For advanced students.
Lectures, reviews of textbooks; practical work in teaching under supervision.
23. ADVANCED LATIN PROSE. 2 h.
Stylistic analysis of Latin authors; the writing of Latin prose; problems in syntax.
24. GREEK AND ROMAN ARCHÆOLOGY. 2 h.
An elementary course in architecture, sculpture, and painting.
25. MINOR LATIN POETS.
Selections from various poets writing later than 69 A. D.
For courses for graduates only, see page 211.

ECONOMICS, SOCIOLOGY, AND POLITICAL SCIENCE

I. ECONOMICS

1. INDUSTRIAL HISTORY OF MODERN EUROPE.* Autumn quarter.
M. W. F. 2:00. 3 h.
Recitations, lectures, reports.
Traces the industrial and social development of the principal nations of Europe from the French Revolution to the present time.
2. ECONOMIC HISTORY OF THE UNITED STATES.* Winter and spring quarters. M. W. F. 2:00. 3 h.
Recitations, readings, lectures.
Traces the growth of industry, agriculture, commerce, transportation, population, and labor from the simple, isolated, agricultural communities of the colonies, to the complex industrial and commercial society of today.

* Juniors and seniors receive only partial credit.

3. ECONOMIC AND COMMERCIAL GEOGRAPHY. Autumn and winter quarters. M. W. F. 11:00. 3 h.

A study of the influence of the geographic environment on the economic life and development of peoples.

4. HISTORY OF COMMERCE. Spring quarter. M. W. F. 3:00. 3 h.

A study of the development of the world's commerce with special attention to modern commercial organization.

5. ECONOMIC PROBLEMS OF RECONSTRUCTION. Winter and spring quarters. M. W. F. 11:00. 3 h.

A study is made of the problems in finance, business, and labor which the war has brought into prominence. The economic principles which apply are explained. Suggested reforms are discussed.

Courses 1 to 5 are introductory and are open to freshmen.

6. PRINCIPLES OF ECONOMICS. Autumn and winter quarters. M. W. F. 9:00. 3 h. Not open to freshmen.

The purpose of this course is to teach fundamental principles; to open the field of economics in the way most helpful to further and more detailed study of special problems, and to give those not intending to specialize in the subject an outline of the general principles of economics.

7. PRINCIPLES AND PROBLEMS OF ECONOMICS. Three quarters. M. W. F. 10:00. 3 h. Not open to freshmen.

The purpose of this course is similar to Course 3, but it involves a more extended discussion of fundamental principles and a study of a larger number of specific problems.

8. STATISTICS. Spring quarter. 1:00. 3 h.

This course deals with elementary principles together with their application, special emphasis being given to vital statistics.

9. LABOR PROBLEMS. Autumn and winter quarters. Tu. Th. 2:00. 2 h. Not open to freshmen.

Recitations, reports, lectures.

A study of labor organizations, employers' associations, their respective methods of bargaining, the relation of government to both.

10. SOCIAL LEGISLATION. Spring quarter. Tu. Th. 2:00. 2 h. Not open to freshmen.
Recitations, reports, lectures.
A study of legislation to remedy conditions of destitution and dependence.
11. MONEY AND BANKING. Three quarters. Tu. Th. 8:00. 2 h.
Lectures, readings, discussions.
The history and theory of money, credit, and banking; special attention given to present-day problems of money and banking in the United States.
Prerequisite: Course 6 or 7.
12. TRANSPORTATION. Three quarters. M. W. 10:00. 2 h.
Recitations, reports, lectures.
A study of the development of rail and water transportation in the United States; special emphasis laid on the condition of railway transportation at the present time. Rates and rate-making, finance, traffic, operation, and legislation are studied in turn.
Prerequisite: Course 6 or 7.
13. TAXATION. Three quarters. Tu. Th. 2:00. 2 h.
Lectures, discussions, reports.
A general study of the theory of public finance and a more detailed study of the revenue systems in the United States.
Prerequisite: Course 6 or 7.
14. CORPORATIONS. Autumn quarter. M. W. F. 2:00. 3 h.
Lectures, discussions, reports.
A study of the nature and organization of corporations. A comparison of the corporate form with other forms of business enterprise. The methods of forming corporations; types of securities; methods of marketing stocks and bonds; financing an enterprise; distribution of earnings; reorganization; problems of regulation and control.
Prerequisite: Course 6 or 7.
15. LIFE INSURANCE. Winter and spring quarters. Tu. Th. 3:00. 2 h.
16. MODERN ACCOUNTING. Winter and spring quarters. M. W. F. 3:00. 3 h.

17. TRUSTS. Spring quarter. Tu. Th. 1:00. 2 h.

Lectures, discussions, reports.

A study of the economics of integration and combination. The trust movement—its causes, characteristics, and monopoly tendencies. Competition and regulation; the Federal Trade Commission; proposed solutions of the trust problem.

Prerequisite: Course 6 or 7.

18. BUSINESS ORGANIZATION AND OPERATION. Winter and spring quarters. Tu. Th. 11:00. 2 h.

This course deals with the principles and types of business organization. The individual proprietorship, the partnership, and the corporation are studied in detail with respect to financing and the operation of a going concern.

Prerequisite: Course 6 or 7.

19. MATHEMATICAL THEORY OF INVESTMENTS. Spring quarter. M. W. F. 10:00. 3 h.

See Department of Mathematics.

20. PRINCIPLES OF ADVERTISING. Spring quarter. M. W. F. 2:00. 3 h.

See also Department of Psychology.

21. SALESMANSHIP. Spring quarter. M. W. F. 11:00. 3 h.

Policies and practise of modern sales organizations. Selling problems of manufacturers, wholesalers, and retailers. Individual salesmanship.

Not open to freshmen.

22. MARKETING AND MERCHANDISING. Winter and spring quarters. M. W. 8:00. 2 h.

A study of the science of the distribution of goods from the producer to the consumer, involving the marketing of both raw materials and merchandise.

Prerequisite: Course 6 or 7.

23. BUSINESS CYCLES. Spring quarter. M. W. F. 9:00. 3 h.

Readings, reports, lectures.

A study of the alternating periods of business prosperity and depression; the causes and effects on the different elements in the community. Remedial and preventive legislation.

For courses for graduates only, see page 225.

II. SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY. Three quarters. Tu. Th. 10:00.
2 h. For juniors and seniors.
Lectures, readings, discussions.

In this course an attempt is made to formulate the fundamental laws of association, with special reference to their relation to social progress. Such topics as the influence of the physical environment, natural selection, warfare, division of labor, sex and sexual selection, heredity, imitation, social oppositions, art, science, and religion will be discussed with reference to their effects on social progress.

2. PROBLEMS IN SOCIOLOGY. Three quarters. Tu. Th. 9:00. 2 h.
Lectures, assigned readings, discussions.

This course takes up the study of our various social institutions, placing special emphasis upon the family, its origin, function, and problems. The course includes a study of immigration, race problems, poverty, crime, and kindred subjects.

3. SOCIALISM. Winter and spring quarters. Tu. Th. 9:00. 2 h.
Proposals for the reorganization of society on a socialistic basis will be studied historically and critically. Writings of the early French and English socialists will be reviewed, but the major part of the course will be devoted to a study of the modern movement.

4. MODERN ENGLISH REFORMERS. Autumn and winter quarters.
M. W. F. 1:00. 3 h.

The lives of English reformers, with discussion on the principles and methods of reform. Wilberforce, Robert Owen, Cobden, Bright, J. S. Mill, Kingsley, Maurice, Florence Nightingale, Shaftesbury, Octavia Hill, Ruskin, Dickens, Huxley, William Morris, A. R. Wallace, etc.

5. ADVANCED THEORY OF SOCIOLOGY. Spring quarter. Tu. Th. 9:00. 2 h. For advanced students only.

A critical study of the theories of the leading sociologists beginning with Auguste Comte.

6. RURAL SOCIOLOGY. Autumn quarter. Tu. Th. 9:00. 2 h.
A study of the social problems of rural community life.

For courses for graduates only, see page 226.

III. POLITICAL SCIENCE

1. AMERICAN GOVERNMENT. Three quarters. M. W. F. 8:00 and 11:00. 3 h. Especially for freshmen, but open to all.

A beginning course in American Government, intended as a preparation for advanced work in Political Science, for teaching in secondary schools, and for good citizenship. The course deals with the fundamental principles upon which the American government is founded, the organization and services of the national, state, and local governments, and the current problems of democracy with which these various units are confronted.

2. WORLD GOVERNMENTS AND POLITICS. Three quarters. Tu. Th. 8:00. 2 h. Open to all except freshmen. Given in summer quarter in more general form.

The League of Nations. Political principles of the Treaty of Versailles. World politics. The types of government of the present day, and the democratic achievements of each. Special consideration of features of suggestive value to the United States. While the governments of all the states of the world (except the United States) will be touched upon, the larger emphasis will be on the governments of the British Empire, France, Switzerland, Germany, Russia, and Japan.

3. MUNICIPAL GOVERNMENT AND PROBLEMS. Three quarters. M. W. F. 1:00. 3 h. Alternates with Course 5.

A study of the principles and plans of city government in the United States and leading foreign countries. The problems of the modern city; home rule; administrative organization; public utilities; city finances; city planning; public health and recreation; and other vital problems.

Prerequisite: Course 1.

4. POLITICAL PARTIES AND PARTY PROBLEMS. Autumn and winter quarters. Tu. Th. 1:00. 2 h. Alternates with Course 6.

This course deals with the functions, history, and organization of political parties; party machinery; public opinion; and current party problems and reforms.

Prerequisite: Course 1.

5. INTERNATIONAL LAW AND RELATIONS. Three quarters. M. W. F. 1:00. 3 h. Alternates with Course 3.

A survey of the growth of international relations, the mode of conducting foreign affairs, methods of making, interpreting and terminating treaties; the organization, duties, and immunities of diplomatic and consular officers; the foreign relations of the United States; a study of the sources, nature, and sanctions of International Law; the status of states in the family of nations; the laws of peace, neutrality, and war; international associations, unions, and cooperations; current problems in international relations.

Prerequisites: Courses 1 and 2.

6. PRINCIPLES OF POLITICAL SCIENCE. Autumn and winter quarters. Tu. Th. 1:00. 2 h. Alternates with Course 4.

A study of the principles underlying modern governmental organization. Best present-day practice. A survey of the leading political theory and philosophy from which these principles have been derived.

Prerequisites: Courses 1 and 2.

7. CONTEMPORARY POLITICAL DOCTRINES AND IDEALS. Spring quarter. Tu. Th. 1:00. 2 h. Alternates with Course 8.

An analysis of the leading political philosophies current in the present day, with the aim of ascertaining the elements which enter into the common ideal of the United States and determine the goal toward which American democracy is tending.

Prerequisite: Course 6.

8. THE GOVERNMENT OF COLORADO. Spring quarter. Tu. Th. 1:00. 2 h. Alternates with Course 7.

An advanced course on the government and political problems of Colorado.

Prerequisites: Courses 1 and 2.

9. PROBLEMS IN AMERICAN GOVERNMENT. Three quarters. M. W. F. 8:00. 3 h. Open only on consultation.

An advanced course on special problems of American Government; the electoral system; the relation of the executive and legislative branches; administrative organization; the budget; direct government; and other problems. The course

is intended especially for advanced students who are qualified to work independently and to prepare reports for presentation in general conferences.

Prerequisite: Course 1.

10. AMERICANIZATION AND OTHER PROBLEMS OF CONTEMPORARY AMERICAN DEMOCRACY. Summer quarter. M. T. W. T. F. 8:00. 5 h.

This course deals with some of the problems with which American democracy is confronted at the present time. The problems of Americanization will receive particular attention; the rise and nature of the problem; the ideal of Americanism; practical methods and materials of Americanization. Among other subjects for consideration are the following: the nature of the democracy; privileges and responsibilities of citizenship; public opinion in a democracy; the problem of representation; radicalism; plans for economy and efficiency.

Prerequisite: Course 1.

11. PRINCIPLES OF CONSTITUTIONAL LAW. Three quarters. Tu. Th. 1:00. 2 h. Alternates with Courses 6 and 7. For juniors and seniors.

A study of the American constitutional system as interpreted in leading decisions of the Supreme Court of the United States.

Prerequisite: Course 1.

12. SEMINAR IN POLITICAL SCIENCE. Three quarters. 2 h. For graduates only.

EDUCATION

For further suggestions regarding the functions or purposes of the courses in this department and the order in which they should be taken, see College of Education, page 133.

1. GENERAL PSYCHOLOGY. (PSYCHOLOGY 1.) Two sections. Autumn and winter quarters. M. W. F. 1:00, 2:00, with an additional hour to be arranged for recitations and conferences. 3 h.
2. EDUCATIONAL PSYCHOLOGY. (PSYCHOLOGY 6.) Spring quarter. M. W. F. 1:00. 3 h.

3. PRINCIPLES OF EDUCATION. Autumn and winter quarters. Tu. Th. 9:00. 2 h.

An elementary discussion of the nature, scope, and aims of education; an examination of those facts, theories, and hypotheses of biology, physiology, anthropology, psychology, sociology, and economics which would seem to have significance for educational theory; a synthesis of what is found to be pertinent into a working creed for the educator.

Prerequisites: Courses 1 and 2 or their equivalent.

4. PUBLIC EDUCATION; ITS ORGANIZATION AND MANAGEMENT. Spring quarter. Hours to be arranged. 3 h.

The relationships between public education and government; school law; the internal organization of a school system; school hygiene; school discipline. The topics are treated in an elementary way.

5. PRINCIPLES AND PRACTICE OF TEACHING. Three quarters. Tu. Th. 8:00 and other hours to be arranged. 2-6 h.

The application of principles to practice; the method and methods of the teacher in the elementary and secondary schools; comparative study of general and special methods; improvements in methods; classroom problems and their solution; the learning process and its direction; how we think and learn to think; how to study; how to teach others to study; essentials in the learning and teaching of the elementary and secondary school subjects.

Practice teaching is done in the University Training School and in the Boulder High School. The student teaches under real school-room conditions except that classes are smaller, beginning teachers are helped more, and supervision emphasizes the learning rather than the teaching process.

Prerequisites: Courses 1, 2, 3, and 4, or their equivalents, senior standing, and the instructor's permission.

6. THE PUBLIC SCHOOL PROGRAM OF STUDIES. Autumn quarter. M. W. F. 8:00. 3 h.

The general subject of educational purposes and values is studied as a guide in the interpretation and making of programs of studies. Different programs of studies are examined as illustrative of fundamental principles and the members of

the class prepare outlines of work in subjects of their choice.

Prerequisites: Courses 1, 2, and 3, or their equivalents.

7. HISTORY AND PHILOSOPHY OF EDUCATION. Three quarters.
M. W. F. 8:00. 3 h.

An outline account of the development of educational theory and practice from the earliest times; education as conscious evolution; the origin, growth, and influence of educational ideas and ideals; evaluation of past ideas and systems and their influence in the present; an elementary philosophy of education.

The distribution of material to the autumn, winter, and spring quarters will be adjusted, approximately at least, to the historical plan of ancient, mediaeval, and modern times.

8. SECONDARY EDUCATION. Autumn and winter quarters. Tu. Th.
1:00. 2 h.

Designed to give a broad view of the purposes and methods of secondary education; includes a brief historical survey; a study of existing systems, their organization, and administration; the secondary school curriculum; the social life of high school pupils; and a critical study of proposed plans for reorganization of the secondary school.

Prerequisites: Courses 1, 2, 3, and 4, or their equivalents.

9. PRINCIPLES OF PRE-SCHOOL EDUCATION. 2 or 3 h.

For those who wish a general yet fairly complete view of the problems of the guidance of children, particularly during the earlier years. The nature of mental soundness; biological and anthropological considerations of mental and moral hygiene; the relation of environment to instruction; the various adaptations required by the environments; the fundamental human occupations; the levels of attainment and satisfaction.

Prerequisites: Courses 1, 2, and 3, or their equivalent.

10. ANTHROPOLOGY. Autumn quarter. M. W. F. 9:00. 3 h.

An introductory study of the natural history of man; a survey of his physical evolution; his agreements with and divergencies from allied animals; theories of time and place of origin; the conditions of his existence and development; his relation to the rest of nature.

11. ETHNOLOGY. Winter quarter. M. W. F. 9:00. 3 h.

The beginnings and transmission of culture; chief divisions of primitive culture; the cultural conditions as differentiating peoples; the variety and range of human activities; the elementary thoughts of mankind—primary elements of culture and mental life; the origin, growth, and present condition of the social, religious, industrial, political, and scientific occupations and institutions of various peoples; the identity of "the human" in the variety of peoples; culture grades and their causes.

12. ETHNOGRAPHY. Spring quarter. M. W. F. 9:00. 3 h.

The main divisions of mankind and their chief physical characteristics; a comparative study of the chief tribes and races in their respective habitats; conditions which bring about differentiation; the migrations of tribes and races; the composition of new stocks; racial prospects.

13. SOCIAL PSYCHOLOGY. Autumn and winter quarters. Tu. Th. 9:00. 2 h.

A study of personality as socially modified or determined; the effects of imitation; habit; habit and attention; social and personal crises; language; instincts, emotions, sentimentalisms, sentiments, and ideas; occupations and institutions.

Prerequisites: Courses 1 and 2, or their equivalent.

14. EDUCATION AND SOCIETY. Spring quarter. Tu. Th. 9:00. 2 h.

A study of the interrelations of education and society; society's responsibilities to, and need of, the school; the school's duty to, and expectations of, society; educational institutions and forces other than the school; society an educational device.

Prerequisites: Courses 1, 2, and 3, or their equivalent.

15. SCHOOL SUPERVISION. Spring quarter. M. W. F. 2:00. 3 h.

A study of those phases of school work that require coordination and the cooperation of the entire teaching corps. The course is planned for both teachers and supervisors. Among the topics to be studied are: the methods of supervision; the graded system and its modifications; the training, selection, promotion, and professional growth of teachers; school finance; records and reports.

Prerequisites: Courses 1, 2, 3, and 4, or their equivalent.

16. **PRACTICUM IN EDUCATION.** Any one or more quarters. Hour to be arranged. Credit to be arranged.

The class will work on the seminar plan. The topic for 1920-1921 will be determined after the personnel of the class is known.

17. **SEMINAR IN EDUCATION.** Three quarters. W. 7:40 p. m. 2 to 6 h.

Subject-matter will vary from year to year; special examination and investigation of selected problems of importance in educational theory and practice; provision for independent investigations and for research in special problems.

Prerequisites: Senior or graduate standing, and the instructor's permission.

ENGLISH LANGUAGE

1. **FRESHMAN ENGLISH.** Nineteen sections. Three quarters. M. W. F. 8:00, 9:00, 10:00, 11:00, 1:00, 2:00, 3:00. 3 h. Required of all freshmen.

Textbook, themes, oral exercises.

2. **ADVANCED COMPOSITION.** Four sections. Three quarters. Tu. Th. 9:00, 10:00, 2:00. 2 h.

Textbook, themes.

3. **THE MODERN SHORT STORY.** Autumn quarter. Tu. Th. 2 h.

Lectures, analysis of short stories, survey of the history of the short story form.

4. **SHORT STORY.** Tu. 7:30. 2 h.

A course in writing short stories under criticism of the instructor and the class, to which only a limited number of apt students are admitted.

5. **FRESHMAN DEBATING.** Tu. Th. 10:00. 2 h.

6. **ARGUMENTATION AND DEBATE.** Three quarters. M. W. F. 2:00. 3 h. Not open to freshmen.

At the end of the first quarter the University debating squad is selected. Those forming this squad will be given two additional credits. No student shall receive more than a total of fifteen credits in debating.

7. PUBLIC SPEAKING. Three quarters. Tu. Th. 3:00, and afternoons to be arranged. 2 h.

A study of oratorical style, analysis and writing of orations, practical exercises.

8. JOURNALISM. Three quarters. Tu. Th. 1:00. 2 h.

Lectures, reports, practical work.

Prerequisite: Advanced Composition.

9. ADVANCED JOURNALISM. Three quarters. Tu. Th. 11:00. 2 h.

Lectures, reports, practical work.

Prerequisite: Journalism.

10. HISTORY OF THE ENGLISH LANGUAGE. M. W. F. 11:00. 3 h.

Lectures and recitations.

11. ANGLO-SAXON. M. W. F. 3 h.

Bright's Anglo-Saxon Reader.

12. ANGLO-SAXON. M. W. F. 3 h.

Beowulf.

13. MIDDLE ENGLISH. Tu. Th. 2 h.

Supplementary reading, lectures, reports.

14. CHAUCER. Winter quarter. M. W. F. 3 h.

Lectures, readings, reports. Skeat's Texts.

15. SHAKESPEARE. Spring quarter. 3 h.

The careful reading of two plays. Rolfe's Texts.

16. PRE-SHAKESPEAREAN DRAMA. 3 h. Primarily for graduates.

Lectures, readings, reports. Manly's specimens of Pre-Shakespearean Drama.

17. PRINCIPLES OF LITERARY CRITICISM. Two quarters. M. W. F. 3 h. Primarily for graduates.

Lectures, readings, reports.

18. MATTHEW ARNOLD AND OTHER CRITICS. Spring quarter. M. W. F. 3 h. Primarily for graduates.

Readings, reports, and discussions.

ENGLISH LITERATURE

Courses especially for Freshmen and Sophomores.

1. THE NOVEL. Autumn quarter. 2 h.
Six typical modern novels, lectures on how to read a novel, reports.
2. PLAYS. Winter quarter. 2 h.
Three plays: a modern play, a Shakespearean tragedy, and a comedy.
3. POETRY. Spring quarter. 2 h. Especially intended for students who do not enjoy poetry but wish to do so.
Courses 1 to 3 make up an Introduction to Literature, but may be taken separately; they are open to all students, but not for full credit to upper-classmen majoring in literature.
4. AMERICAN LITERATURE. Three quarters. 3 h.
The chief American writers with emphasis on the growth of American ideals.
5. CLASSICAL MYTHOLOGY. See Department of Classics.

Courses for Sophomores and Upperclassmen.

6. HISTORY OF ENGLISH LITERATURE. Three quarters. 3 h. Not open to freshmen. Required in the sophomore year of all students majoring in English Literature.
A survey course covering the periods of English literature from the fourteenth to the twentieth century. It is designed to give by means of lectures a general knowledge of literary types and movements and of the chief writers of each period; and by means of class discussions a more detailed knowledge of selected masterpieces. A foundation course preparing the way for more specialized work or general reading.
7. ORAL INTERPRETATION OF LITERATURE. Three quarters. 2 h.
The simple and intelligent reading of literary prose and verse. Not open to freshmen.
8. PLAY PRESENTATION. Three quarters. 2 h.
The staging and acting of one-act plays and of scenes from larger plays.
Not open to freshmen.

9. LATIN POETRY IN ENGLISH. See Department of Classics.
10. GREEK POETRY IN ENGLISH. See Department of Classics.
Courses open only to Juniors and Seniors.
11. THE DRAMA. Three quarters. 3 h.
Autumn quarter. How to read plays; English and American drama from 1800 to 1893. Winter quarter: The contemporary drama. Spring quarter (which may be taken independently): Types of the older drama.
12. ENGLISH FICTION. Three quarters. 3 h.
The development of the English novel; lectures; required reading of six novels each quarter.
13. THE RENAISSANCE. Three quarters. 2 h.
A reading course in the literature of England from 1500 to 1642, omitting the drama.
14. THE CLASSICAL PERIOD. Three quarters. 2 h.
A reading course in the literature of England from 1642 to 1798, omitting the novel.
15. NINETEENTH CENTURY POETRY. Three quarters. 3 h.
A reading course in the poetry of England from 1798 to 1914.
16. NINETEENTH CENTURY PROSE. Three quarters. 2 h. -
A reading course in the prose of England from 1798 to 1914, omitting the novel and the drama.
17. SHAKESPEARE. Three quarters. 3 h.
A reading course in which all the plays and poems are read in chronological order.
18. WORDSWORTH AND COLERIDGE. Spring quarter. 3 h.
An advanced course.
19. TEACHING OF ENGLISH IN HIGH SCHOOLS. Spring quarter. 2 h.
Advised only for students who have taught English in the high school, or expect to do so in the near future.

Students majoring in English Literature will select Course 6; Course 11 or 12; two courses in different periods, 13-16;

Course 17 or 18; and if they intend to teach English, Courses 7 and 19. Whatever their minors, they are urged to take at least two years of some language other than English, certain courses in the Department of English Language, and the Social History of Modern England. Freshman Composition does not count as a minor for English Literature, nor do the courses in the classics in English.

For courses for graduates only, see page 215.

GEOLOGY, MINERALOGY, AND GEOGRAPHY

I. GEOLOGY

1. **PHYSIOGRAPHY.** Autumn quarter. Three sections. Lectures. M. W. F. 9:00, 10:00, and 1:00. One quiz section and one three-hour field or laboratory period a week to be arranged. 4 h. Occasional Saturday trips will be required. An introductory course open to all.

This course covers essentially the work done formerly during the first three months in general geology. It includes a study of the atmosphere, the waters of the earth, the geologic and geographic changes of the surface of the earth, and the development of the present relief features.

The course may be taken with Geology 2 to complete 12 hours science. It should be elected by all students, without previous college training in the subject, who expect to specialize in geology or geography, but should follow or be accompanied by general chemistry, if the student is to major in Geology.

2. **GENERAL GEOLOGY.** Winter and spring quarters. M. W. F. 1:00. 4 h. Field or laboratory period, Tu. or Th., second quarter, 8:00 to 10:00 or 1:00 to 3:00; third quarter, 8:00 to 11:00 or 1:00 to 4:00. Two Saturday trips will be taken.

The course will consist of a study of the principles of geology, with special reference to the geological history of North America.

Prerequisite: Geology 1 (Physiography).

3. **ENGINEERING GEOLOGY.** Autumn quarter. M. W. 11:00. One three-hour field or laboratory period to be arranged. 3 h. Winter quarter, M. W. F. 11:00. Field or laboratory period W. 1:00 to 4:00. 4 h. Open to upper-classmen who are not majoring in geology.

This course includes a general discussion of the principles of geology and the relations of geology to engineering operations.

4. **ECONOMIC GEOLOGY.** Three quarters. M. W. F. 10:00. Two hours of laboratory or field work to be arranged to suit the convenience of the students. 3 h.

A study of the mineral resources of the United States, including the origin and character of ore bodies, the ores of iron, copper, lead, zinc, gold, silver, etc.; the extraction and uses of the metals; fuels, building materials, fertilizers, mineral waters, etc.

Prerequisites: Geology 1, and 2 or 3.

5. **STRUCTURAL GEOLOGY.** Autumn quarter. M. W. F. 8:00. 3 h.
Prerequisites: Geology 1 and 2, and General Physics.

6. **OIL GEOLOGY.** Winter and spring quarters. M. W. F. 8:00. 3 h.
Prerequisite: Geology 5.

7. **GEOLOGIC SURVEYING.** Spring quarter. M. W. F. 1:00 to 5:00. 4 h.

This course is designed to train the student in all kinds of geologic field work. The methods used are those employed by the U. S. Geological Survey.

Prerequisites: Geology 5 and Mineralogy 1.

8. **ADVANCED GEOLOGY.** Winter and spring quarters. M. W. F. 2:00. 3 h. Given in alternate years.

Prerequisites: Geology 1, 2, 5, and Mineralogy 1.

9. **GEOLOGY OF COLORADO.** Autumn quarter. M. W. F. 3 h. Given in alternate years.

A study of the dynamic, structural, historical, and economic geology of Colorado.

This may be taken as a four-hour course.

Prerequisites: Geology 1 and 2, and Mineralogy 1.

10. GEOLOGY. (A CULTURE COURSE.) Spring quarter. M. W. 3:00.
2 h. Open to juniors, seniors, and graduates.

A lecture and reading course for general culture rather than scientific training.

This course does not count toward the science requirement, nor will credit be given to students who have credit for Geology 1, 2.

11. PALEONTOLOGY. Three quarters. 3 h. Open to advanced students in geology and biology, on consultation with the professor.

It will include lectures on the principles of paleontology, and the facts concerning the development of types which characterize the several periods of geologic times; laboratory work in the identification, classification, and description of fossil animals and plants, and the discussion of their stratigraphic and biologic position and significance.

12. ADVANCED PALEONTOLOGY. Three quarters. Credit and hours to be arranged.

Lectures on the literature of paleontology and the systematic classification of fossils, including the vertebrates. Laboratory work on recurrent faunas, faunas of selected oil districts, and the identification of material in field collections. Students may work on material they themselves have collected.

Prerequisite: Course 11.

For courses for graduates only, see page 215.

II. MINERALOGY AND PETROLOGY

A. Courses for Undergraduates.

1. ECONOMIC MINERALOGY. Three quarters. Tu. Th., one lecture and recitation period and two laboratory periods. 3 h.

The course includes the determination of minerals of economic importance by chemical and physical tests and the study of collections of economic minerals.

Prerequisite: a course in general chemistry.

2. CRYSTALLOGRAPHY. Autumn quarter. M. W. F. 3 h.

An elementary course that includes the study of crystals and crystal models.

B. Courses Open to Graduates and Undergraduates.

3. ADVANCED MINERALOGY. Winter and spring quarters. One lecture and recitation period and two laboratory periods. 3 h.

A course in descriptive and determinative mineralogy. Minerals not studied in Course 1 are determined in the laboratory.

Prerequisites: Courses 1 and 2.

4. FIRE ASSAYING. Winter quarter. M. W. F. 1:00; one recitation and lecture period and three laboratory periods. 4 h.

Prerequisites: Economic Mineralogy and Qualitative Analysis. Ore Analysis, given in the Chemistry Department in the spring quarter, is recommended to students who take Fire Assaying.

5. ADVANCED CRYSTALLOGRAPHY. 3-6 h.

This course includes measurement of crystal angles with the reflecting goniometer, determination of indices and axial ratios, stereographic projection, and crystal drawing.

6. OPTICAL MINERALOGY. Autumn quarter. 3 h. Open on consultation.

7. PETROGRAPHY. Winter and spring quarters. 3 h. This course should be taken in the senior year by students who expect to do graduate work in geology.

Lectures, recitations, laboratory, work with petrographic microscope.

Prerequisite: Optical Mineralogy.

For courses for graduates only, see page 216.

III. GEOGRAPHY

1. PHYSIOGRAPHY. Autumn quarter. Three sections. Lectures M. W. F. 9:00, 10:00, and 1:00. One quiz section and one three-hour field or laboratory period a week to be arranged. Occasional Saturday field trips will be required. 5 h.

This course includes a study of the atmosphere, the waters of the earth, the geologic and geographic changes of the surface of the earth, and the development of the present relief features.

It may be taken with Geography 2 and 3, or 2 and 4 to complete 12 hours in science.

2. CLIMATOLOGY. Winter quarter. M. W. F. 9:00. Laboratory, 2 hour period, Tu. or Th. 4 h.

The course is based on a study of the atmosphere. It includes a thorough study of the climate of the world and a discussion of the relationships of climate to crops, industry, and health.

Prerequisites: Geography 1, or any introductory course in Biology.

3. GEOGRAPHY OF NORTH AMERICA. Spring quarter. M. W. F. 9:00. Laboratory or field work and one quiz section to be arranged. 4 h.

A study of the physical features and natural resources of the continent as factors in its cultural, historical, and industrial development.

4. ADVANCED PHYSIOGRAPHY. Spring quarter. M. W. F. 8:00. 4 h. One three-hour field or laboratory period to be arranged. There will be two or three all-day field trips. Not open to freshmen and sophomores. Given once in two or three years.

The course is a continuation of Geography 1. It deals largely with the laboratory side of the work and the methods of teaching physical geography and physiography.

Prerequisite: Geography 1.

5. GEOGRAPHY OF SOUTH AMERICA. Winter quarter. M. W. F. Hours to be arranged. 3 h. Not open to freshmen. Not given every year.

A regional study of South America, with stress on the natural resources of the continent, and on the trade relations with the United States.

6. GEOGRAPHY OF EUROPE. To be arranged. 3 h. Not open to freshmen. Not given every year.

A regional study of the continent. Particular attention is given to the subjects: the geography and strategy of the war, the natural and political boundaries, and the influence of the resources and environment on the development of the culture of the various European states.

GERMANIC LANGUAGES*

GERMAN

1. **ELEMENTARY COURSE.** Three quarters. 8:00, 1:00. 5 h.
Grammar, pronunciation, reading; practice in writing and speaking German.
- 1a. **ELEMENTARY COURSE.** Three quarters. 3 h. Designed primarily for scientific students.
2. **INTERMEDIATE COURSE.** Three quarters. M. W. F. 9:00. 3 h.
Reading of selected masterpieces of German literature, such as Lessing's *Minna von Barnhelm*. Schiller's *Jungfrau von Orleans*, Ludwig's *Zwischen Himmel und Erde*, Freytag's *Die Journalisten*.
Prerequisite: Course 1, or two years of high school German. It is strongly recommended that Course 3 accompany Course 2.
3. **COMPOSITION AND COLLOQUIAL PRACTICE.** Throughout the year.
Tu. Th. 9:00. 2 h.
German themes and letters; drill in syntax and idiom.
Prerequisite: Course 1, or two years of high school German. It is recommended that Course 3 be taken parallel with Course 2.
4. **LESSING AS A DRAMATIST.** Autumn quarter. 3 h.
Study of *Nathan der Weise*; discussions and reports.
Prerequisite: Course 2 or its equivalent.
5. **VON SCHEFFEL'S EKKEHARD.** One quarter. 3 h.
Reading and study of the entire novel.
Prerequisite: Course 2 or its equivalent.

* So far as practicable the classes in this department are conducted in the German language.

6. FREYTAG'S BILDER AUS DER DEUTSCHEN VERGANGENHEIT. Winter quarter. 3 h.
Reading and study of selections.
Prerequisite: Course 4 or 5.
7. SCHILLER'S WALLENSTEIN AND DIE BRAUT VON MESSINA. Winter and spring quarters.
Readings from the other plays of Schiller; discussions and reports.
Prerequisite: Course 4 or 5.
8. GOETHE'S DRAMAS, EXCLUSIVE OF FAUST. One quarter. 3 h.
Readings, discussions, papers.
Prerequisite: Course 4 or 5.
9. THE GERMAN DRAMA OF THE NINETEENTH CENTURY. One quarter. 3 h. Open to advanced students who read German with facility.
Reading of representative plays and discussion of the problems which they present.
10. ADVANCED COMPOSITION. Three quarters. 2 h. Open to advanced students on consultation; recommended to prospective teachers of German.
Themes on various aspects of German life, with discussions in the German language.
11. GERMAN PRONUNCIATION. Two quarters. 1 h.
Special drill on the German sounds; the reading of selected German poems.
Prerequisites: Courses 1-3.
12. GOETHE'S FAUST: PARTS I AND II. Two quarters. 3 h. Open to graduate students and seniors.
13. STUDIES IN THE HISTORY OF THE GERMAN NOVEL. Two quarters. 3 h. Open to seniors and juniors who read German with facility.
Reading and discussion of selected works.
14. THE GERMAN NOVELLE. Two quarters. 3 h. Open to seniors and juniors who read German with facility.
Reading and discussion of representative stories.
This course alternates with Course 13.

15. **TEACHERS' COURSE.** Two quarters. 2 h.

The phonetics and pronunciation of German; methods of teaching German to foreigners; examination of grammars and readers; systematic study of one of the texts usually read in high schools.

16. **SCIENTIFIC GERMAN.** Three quarters. 2 h.

Prerequisite: Course 1, or two years of high school German.

17. **THE HISTORY OF GERMAN LITERATURE FROM THE EARLIEST TIMES TO THE TIME OF KLOPSTOCK.** Two quarters. 3 h. Open to advanced students who read German with facility.

Lectures, collateral reading, reports.

18. **THE HISTORY OF GERMAN LITERATURE FROM THE TIME OF KLOPSTOCK TO THE PRESENT.** One quarter. 3 h.

Lectures, collateral reading, papers.

19. **GERMANIC HERO-SAGAS.** Two quarters. 2 h. Open to advanced students.

Lectures, recitations, collateral reading.

20. **GERMANIC MYTHOLOGY.** Two quarters. 2 h. Open to advanced students.

Lectures, recitations, collateral reading.

Primitive Germanic religion, customs, and ideals of life, in their relation to German literature.

21. **GENERAL PHONETICS.** Autumn quarter. 2 h.

An introduction to the subject, with a careful consideration of speech-sounds, and of the bearing of phonetics upon the development of language.

22. **POETICS.** Two quarters. 2 h. Open to juniors and seniors.

The aim of poetry; forms of poetry; style; meter.

23. **AN INTRODUCTION TO THE STUDY OF LANGUAGE.** Two quarters. 2 h.

Aims and methods of linguistic study. Theories concerning the origin of language; grammatical gender; sound changes.

24. READING AND INTERPRETATION OF SELECTED GERMAN WORKS ON SOCIOLOGY AND PHILOSOPHY. Three quarters. 3 h. Open to graduate students and seniors.

For courses for graduates only, see page 217.

SCANDINAVIAN

1. DANO-NORWEGIAN. Three quarters. 3 h. Open to all.
An introduction to the study of the Danish and Norwegian languages and literatures.
2. MASTERPIECES OF NORWEGIAN LITERATURE. Two quarters. 3 h.
Selected readings, especially from the works of Ibsen and Bjornson.
Prerequisite: Course 1 or a reading knowledge of Norwegian.
3. SWEDISH. Three quarters. 3 h. Open to all.
An introduction to the Swedish language.
4. TEGNER'S FRITJOFS SAGA. Two quarters. 3 h.
Prerequisite: Course 3 or its equivalent.

HISTORY

Primarily for Freshmen.

1. MODERN EUROPEAN HISTORY, 1500-1914.* Three quarters. 3 h.
2. ANCIENT HISTORY TO 800 A. D.* Three quarters. 3 h.
Not Open to Freshmen.
3. THE FRENCH REVOLUTION AND THE NAPOLEONIC ERA. Two quarters. 2 h.
Prerequisite: Course 1.
4. ENGLISH HISTORY. Three quarters. M. W. F. 2:00. 3 h.
The political, economic, and social history of England.
This course is required by the School of Law for entrance.
5. HISTORY OF THE UNITED STATES, 1760 TO THE PRESENT TIME. Three quarters. M. W. F. 11:00. 3 h. Any quarter's work may be taken separately. This course is prerequisite for all other courses in United States History.

* Juniors and seniors receive only partial credit.

6. HISTORY OF RUSSIA. Two quarters. 2 h.
7. THE FAR EASTERN QUESTION. One quarter. 2 h.
8. SOCIAL HISTORY OF MODERN ENGLAND. Three quarters. 2 h.
A consideration of English life, manners, and customs from 1485 to the present time, with political events introduced only as necessary backgrounds. Intended primarily for students of English Literature.
9. HISTORY OF GREECE. Two quarters. 2 h.
For Juniors and Seniors.
10. POLITICAL HISTORY OF ATHENS. One quarter. 3 h.
11. THE POLITICAL THEORIES OF PLATO AND ARISTOTLE. One quarter.
2 h.
12. THE FALL OF THE ROMAN REPUBLIC. One quarter. 3 h.
13. THE ROMAN EMPIRE. One quarter. 3 h.
14. THE MEDIEVAL CHURCH AND THE REFORMATION. Three quarters.
3 h.
Open on consultation. This course will deal primarily with the institutional side of the mediæval and reformed churches.
15. ENGLISH MEDIEVAL INSTITUTIONS. Three quarters. M. W. F.
10:00. 3 h. Open on consultation.
A detailed study, based largely upon source material, of the manor, the gilds, feudalism, and the institutions of the church during the thirteenth and fourteenth centuries.
16. THE ITALIAN RENAISSANCE. Two quarters. 3 h.
Special emphasis will be placed upon the artistic and literary side of the Renaissance.
Prerequisite: Course 1.
17. MODERN ENGLAND. Two quarters. 3 h.
18. INTERNATIONAL COOPERATION HISTORICALLY CONSIDERED. One
quarter. 2-3 h.
A study of the conditions favoring and hindering international life. The actual international organizations and institutions before 1914. The growth of international arbitration. The peace movement and the league of nations idea.

19. ADVANCED MODERN EUROPEAN HISTORY. One quarter. 3 h.

A detailed study will be made of some limited phase of modern history, *e. g.*, the Near Eastern question or the history of France or Germany since 1870. The subject will be changed each year and the course may be elected more than once.

Prerequisite: Course 1.

20. THE RENAISSANCE AND REFORMATION. Two quarters. 3 h.

21. THE MIDDLE AGE. Three quarters. 2 h.

22. THE GROWTH OF THE BRITISH EMPIRE. One quarter. 2 h.

23. CONSTITUTIONAL HISTORY OF THE UNITED STATES. Three quarters. 3 h.

A study of the origins of the constitutional system of the United States in England and the Colonies; the formation of the constitution; its growth and interpretation to the present time.

Prerequisite: Course 7.

24. THE WESTWARD MOVEMENT.* Three quarters. 2 h.

A study of the western expansion of the English colonies and the United States.

Prerequisite: Course 7.

25. COLONIZATION OF NORTH AMERICA. Three quarters. 3 h.

The course surveys the colonizing activities in the West Indies and North America of Spain, France, the Netherlands, Sweden, and England, and the international struggles of the eighteenth century and the American Revolution.

26. FOREIGN RELATIONS OF THE UNITED STATES. Three quarters. 2 h.

A survey of the foreign relations of the United States since 1776.

27. RESEARCH COURSE IN THE HISTORY OF THE WEST. Three quarters. 2 h.

28. TEACHERS' COURSE IN HISTORY. One quarter. 2-3 h. Required of all students who are preparing to teach history.

29. HISTORIOGRAPHY. One quarter. 3 h. Required of all juniors and seniors majoring in history.

*No credit given for less than three quarters.

HOME ECONOMICS*

1. **ELEMENTARY FOODS.** Autumn quarter. 3 h. For students who have not had a Foods course in high school.
A general survey of food composition, food costs, and the elementary principles of food-preparation.
Parallel: Inorganic Chemistry.
2. **SELECTION AND PREPARATION OF FOODS.** Three quarters. 3 h.
A detailed study of foods, their composition, manufacture, preparation, and preservation.
Prerequisites: Course 1 or its equivalent, and two quarters of inorganic chemistry.
3. **MEAL PLANNING AND SERVING.** Winter and spring quarters. 3 h.
Preparation and serving of meals, with definite relation to food value and cost.
Prerequisite: Course 2.
4. **EXPERIMENTAL COOKERY.** 3 h.
Experimental study of various problems in the field of cookery. Individual laboratory problems.
5. **NUTRITION I.** Autumn quarter. 4 h.
Principles of human nutrition. Applications to needs of individuals and groups under varying conditions of age, growth, and occupation. Construction of dietaries.
Prerequisites: Biochemistry and physiology.
6. **NUTRITION II.** Winter quarter. 4 h.
A consideration of metabolism in disease. Adaptation of diet to disorders of nutrition. Laboratory includes practice work in the university hospital.
7. **ELEMENTARY CLOTHING.** Winter and spring quarters. 3 h.
Required of students who have not had a clothing course in high school.
Technique of hand and machine sewing; simple drafting; making of garments with special reference to choice of materials, cost, and time.

*Courses 5, 6, 10, 12, and first quarter of 11 may count as credit toward the A.B. degree; other credits listed in this department apply on the B.S. degree only.

8. **ADVANCED CLOTHING.** Three quarters. 3 h.

Principles of costume design; study of commercial patterns.

Technique in cutting and making of silk and wool dresses.

Prerequisites: Course 7 and Color and Design.

9. **CLOTHING FOR THE FAMILY.** Autumn quarter. 3 h.

Planning of the family clothing budget and making of garments for individuals of different ages. Problems of remodeling and renovation. Consideration of purchasing of materials and garments from standpoints of economy of money and time.

Prerequisite: Course 8.

10. **TEXTILES.** Spring quarter. 3 h.

Study of common textile fibers and commercial weaves; physical and chemical tests of fibers and fabrics; factors influencing costs.

Prerequisite: One quarter of college chemistry or one year of high school chemistry.

11. **HOUSEHOLD MANAGEMENT.** Autumn and winter quarters. 3 h.

Organization of the household; the budget and its apportionment; application of principles of scientific management to the household.

Required: Junior or senior standing.

12. **CARE OF THE CHILD.** Spring quarter. 3 h.

The needs of the child; method of meeting these needs through the care of the child in the home and through community welfare activities. Special emphasis on hygiene and nutrition.

Prerequisite: Nutrition I.

13. **TEACHERS' COURSE.** Autumn quarter. 2 h.

Development of home economics. Study of existing courses. Special problems in planning of work for home economics classes.

The following electives are suggested:

A. As a part of a liberal education: courses in history, economics, sociology, and English literature.

B. Instructor in general home economics: State diploma requirements are listed under the College of Education announcements; Teachers' Course in Home Economics.

C. For dietitians or laboratory workers: courses in qualitative, quantitative, and food analytical chemistry; courses in bacteriology, blood chemistry, and in clinical laboratory methods

D. Community welfare work: course in economics, sociology, social psychology, and playground work.

LIBRARY SCIENCE AND PRACTICE

1. LIBRARY SCIENCE AND PRACTICE. Three quarters. Th. 3:00, lectures; five hours each week laboratory. 2 h.

Lectures by members of the library staff, and invited members of the profession. The course aims to give an adequate working knowledge of library usage. Visits to neighboring libraries, binderies, and publishing houses supplement lectures and laboratory instruction.

MATHEMATICS

1. COLLEGE ALGEBRA. Autumn and spring quarters. 3 h.
Presupposes one unit of high school algebra.

2. TRIGONOMETRY. Winter and spring quarters. 3 h.
Presupposes one unit of high school algebra.

3. TRIGONOMETRY. Spring quarter. 3 h.

This course is intended for students not enrolled in the College of Arts and Sciences.

4. ANALYTICAL GEOMETRY. Spring quarter. 3 h.

Prerequisites: Courses 1 and 2, or their equivalent.

5. DIFFERENTIAL AND INTEGRAL CALCULUS. Three quarters. 3 h.

Prerequisites: Courses 1, 2, and 4.

6. DIFFERENTIAL EQUATIONS. Autumn and winter quarters. 3 h.

Prerequisites: Courses 1, 2, 4, and 5.

7. LIE THEORY OF DIFFERENTIAL EQUATIONS. Spring quarter. 3 h.
Prerequisite: Course 6.
8. APPLIED GEOMETRY. Spring quarter. 3 h.
Prerequisite: 1 unit of high school geometry.
9. THEORY OF EQUATIONS. Spring quarter. 3 h.
Prerequisites: Courses 1, 2, 4, and 5.
10. ANALYTIC SOLID GEOMETRY. Autumn and winters quarters. 3 h.
Prerequisite: Course 4.
11. MODERN GEOMETRY. Spring quarter. 3 h.
Prerequisites: Courses 4 and 9.
12. TEACHING OF MATHEMATICS.* Autumn and winter quarters. 2 h.
Not given in 1920-1921.
13. HISTORY OF MATHEMATICS.* Autumn and winter quarters. 2 h.
Given in 1920-1921.
14. MATHEMATICAL THEORY OF INVESTMENT. Spring quarter. 3 h.
15. STATISTICS. Spring quarter. 2 h.
Prerequisite: 1 unit of high school algebra.
16. COURSES IN COMPLEX FUNCTIONS, PROJECTIVE GEOMETRY, AND
TRANSCENDENTAL FUNCTIONS.
These courses will be given when requested by five or more
students.

For courses for graduates, see page 219.

MUSIC

1. HARMONY. Three quarters. Tu. Th. 10:00. 2 h.
Textbook: Bussler.
2. COURSE 1 CONTINUED. Three quarters. 2 h.
Textbook: Bussler.
Prerequisite: Course 1.
3. COUNTERPOINT. Three quarters. 2 h.
Textbook: Bridge.
Prerequisites: Courses 1 and 2.

* Given only in alternate years.

4. CANON AND FUGUE. Three quarters. 2 h.
Textbook: Prout.
Prerequisites: Courses 1, 2, and 3.
5. COMPOSITION AND ORCHESTRATION. Three quarters. 2 h.
Prerequisites: Courses 1, 2, and 3.
6. HISTORY OF MUSIC. Three quarters. Tu. Th. 2:00. 2 h. Open to all.
Lectures.
7. ÆSTHETICS AND PHILOSOPHY OF MUSIC. Winter and spring quarters. W. 7:30. 1 h. Open only to graduate students and seniors.
Seminar.
8. APPRECIATION OF MUSIC. Three quarters. M. 4:00. 1 h. Open to all.
Lectures.

PHILOSOPHY

1. *GREEK PHILOSOPHY FROM THALES TO PLATO. Autumn quarter. M. W. F. 11:00. 3 h.
2. *ARISTOTLE TO WILLIAM OF OCCAM. Winter quarter. M. W. F. 11:00. 3 h.
3. *BACON TO KANT. Spring quarter. M. W. F. 11:00. 3 h.
4. PROBLEMS OF PHILOSOPHY. Three quarters. M. W. F. 9:00. 3 h.
5. ETHICS. Autumn and winter quarters. M. W. F. 10:00. 3 h.
6. SOCIAL ETHICS AND CONCEPTS OF THE SOCIAL SCIENCES. Spring quarter. M. W. 10:00. 2 h.
7. HISTORY OF POLITICAL PHILOSOPHY. Winter quarter. Tu. Th. 9:00. 2 h.
8. LOGIC. Spring quarter. Tu. Th. 9:00. 2 h.
9. ANCIENT PHILOSOPHIC CONCEPTS AND METHODS. Autumn quarter. Tu. 11:00. 2 h.

* For credit at least two of courses 1, 2, 3 must be taken.

10. HUME AND KANT. Winter quarter. Tu. 11:00. 2 h.
Prerequisites: Courses 1 or 2, 3, and 4. Advanced.
11. RECENT THEORIES OF KNOWLEDGE AND BEING. Spring quarter.
Tu. 11:00. 2 h.
Prerequisites: Course 1 or 2, 3, and 4. Advanced.
12. ÆSTHETICS. Autumn quarter. Tu. Th. 9:00. 2 h.
13. HISTORY OF SCIENCE. Autumn quarter. Tu. 7:30 to 9:00. 2 h.
Not given 1920-1921.
14. PHILOSOPHY OF HISTORY. Winter quarter. M. W. F. 3:00 2. h.
Not given 1920-1921.

PHYSICAL EDUCATION

Two years' work in Physical Education is required of students in the College of Arts and Sciences. Beyond this no academic credit is given for any of the courses in Physical Training except the Teachers' Course, and the Playground Course.

COURSES FOR MEN

1. SPORTS AND GYMNASTICS. Three quarters. 10:00, 11:00, 2:00, 3:00. 1 h. Open to all.
Body-building drills; football; soccer; basketball; volley ball; baseball; boxing; wrestling; track and field athletics.
2. THERAPEUTIC AND CORRECTIVE GYMNASTICS. Three quarters.
M. W. F. 10:00, 11:00, 2:00, 3:00. 1 h.
3. TEACHERS' COURSE. Three quarters. 1 h.

A study of the major branches of sports: football, basketball, baseball, track and field athletics, each in season. Lectures on the game, offense, defense, the rules, the several positions, daily programs of practice, methods of coaching. The class instruction is paralleled by practical work.

Classes in Therapeutic and Corrective Gymnastics and Massage and Athletic Training are given when large enough classes can be secured.

4. ATHLETICS. Throughout the year.

Elective for students who are physically competent. Football, basketball, soccer, boxing, wrestling, tennis, baseball, track and field work.

COURSES FOR WOMEN

1. GYMNASTICS AND OUTDOOR SPORTS. Three quarters. Three hours a week. 1 h. Required of all freshmen.
 - a. Outdoor work, autumn and spring terms.* Organized sports: archery, baseball, field hockey, golf, riding, soccer, tennis, and volley ball.
 - b. Indoor work, winter term.* Gymnastics, three hours: marching, gymnastic free standing exercises, apparatus.
2. CORRECTIVE GYMNASTICS. Three hours a week.

Substituted for Course 1b when the physical examination indicates the need of special corrective work.
3. RESTRICTED GYMNASTICS. Three hours a week.

Substituted for Course 1b when the medical examination indicates the need of restricted work.
4. ELECTIVE GYMNASTICS. Two hours a week. Winter term.* Open to all who have completed Course 1 or its equivalent.
5. ELECTIVE ATHLETICS. Open to all.

Basketball, indoor baseball, swimming, and volley ball.
6. ELECTIVE ELEMENTARY DANCING. Winter term.* Open to students who have had no previous training.
7. ELECTIVE ADVANCED DANCING. Winter term.* Open to all who have completed Course 6 or its equivalent.
8. FOLK DANCING. Open to all.
9. PLAYGROUND COURSE. One quarter. Four hours a week with additional hours in first aid. 3 h. Elective.
 - a. Theory. (1) Development of playground and recreation movement; economic and sociological needs for playgrounds; nature and function of play; organization, construction, and equipment of playground; conduct of activities on the playground. (2) First Aid. Ten lectures of one and one-half hours each. Required of all playground students. Recitations, assigned readings, practice in bandaging.

Course given by a physician.
 - b. Practical work. Two hours a week of games and folk dances, with practice teaching.

* Autumn term, September to November. Winter term, November to April. Spring term, April to June.

PHYSICS

1. GENERAL PHYSICS.* Lectures, two hours, W. F. 10:00; recitations, two hours. 4 h.

a. Mechanics and Sound; autumn quarter. b. Heat and Light; winter quarter. c. Electricity and Magnetism; spring quarter.

Prerequisite: An elementary knowledge of plane trigonometry.

2. EXPERIMENTAL PHYSICS. One three-hour period per week. 1 h. Quantitative laboratory work in the subjects indicated in Course 1a, b, c.

Prerequisite: An elementary knowledge of plane trigonometry.

3. ANALYTICAL MECHANICS—STATICS. Spring quarter. 3 h. Taken regularly in the sophomore year.

A study of the conditions of equilibrium of particles and rigid bodies; centers of mass; moments of inertia.

Prerequisites: Course 1 and calculus; open, however, to those taking the integral calculus.

4. ANALYTICAL MECHANICS—DYNAMICS. Autumn and winter quarters. 3 h. Taken regularly in the junior year.

A study of the motion of particles and rigid bodies. Emphasis is laid upon the fundamental physical principles of the subject and an attempt is made to give the student a certain facility in translating physical conceptions into mathematical symbols and mathematical formulae into physical ideas.

Prerequisites: Course 1 and calculus.

*Course 1 is an elementary but thorough presentation of the fundamental facts, principles, and applications of modern physics. Although the subject matter is divided for convenience into quarters, students are expected to continue the study throughout the year.

The lectures are fully illustrated by apparatus and by experiments. The recitations are based upon both the lectures and a text book which is studied systematically in parallel with the lectures.

It is strongly recommended that course 2 be taken in parallel with course 1. When not so taken course 1 or its equivalent must precede.

Course 1 (and in many cases also course 2), or its equivalent, are prerequisite for all those that follow. They are taken regularly in the sophomore year but may be taken by freshmen with the requisite preparation. They should be taken as soon as possible by those whose major subject is physics, mathematics, or chemistry.

5. **TEACHERS' TRAINING COURSE IN PHYSICS.** Spring quarter. 3 h.
Not given in 1921-1922.

A course designed primarily for those who expect to teach physics in secondary schools. Such topics as the proper arrangement and aims of a secondary-school course, laboratory equipment and instruction, and ways and means of teaching the various subjects, will be considered in lectures, discussions, and reports. The teaching of General Science will also be discussed. Considerable outside reading will be required.

Prerequisites: Courses 1 and 2 or their equivalent.

6. **THEORY OF ELECTRICITY AND MAGNETISM I.** Autumn quarter, M. W. 11:00. 2 h. Winter quarter, M. W. F. 11:00. 3 h.
Taken regularly in the junior year.

The elements of the mathematical theory of electricity and magnetism with applications to the general theory of instruments of fundamental importance in electrical measurements.

Prerequisites: Courses 1, 3, 4, and calculus; open, however, to those who are taking Course 4.

7. **THEORY OF ELECTRICITY AND MAGNETISM II.** Spring quarter. 3 h. Taken regularly in the junior year.

An extension of Course 6 devoted chiefly to alternating current theory, problems and applications. Course 6 and 7 are designed to furnish a thorough knowledge of fundamental ideas and principles and a preparation for the study of advanced electrodynamics.

Prerequisites: Course 6 and calculus.

8. **ELECTRICAL MEASUREMENTS I.** Winter quarter. Three three-hour periods per week. 3 h. Taken regularly in the junior year.

A laboratory course intended to accompany and to supplement Course 6.

Prerequisites: Courses 1, 2, and calculus.

9. **ELECTRICAL MEASUREMENTS II.** Spring quarter. One lecture and two three-hour laboratory periods per week. 3 h.

This course deals with selected electrical problems of considerable difficulty, requiring a rather advanced knowledge of the theory of electricity and magnetism.

Prerequisites: Courses 6, 8, and calculus.

10. **PROPERTIES OF MATTER.** Spring quarter. Lectures one hour; laboratory, two two-hour periods. 3 h. Not given 1921-1922.

Lectures on molecular physics and the properties of matter with laboratory work in selected problems of considerable experimental difficulty.

Prerequisites: Courses 1, 2, 3, 4, and calculus.

11. **HEAT.** Autumn quarter. Lectures and recitations. 3 h.

A study of the more important phenomena of heat and elementary thermodynamics.

Prerequisites: Courses 1, 2, and calculus.

12. **PHOTOGRAPHY.** Spring quarter. 3 h. Lectures, recitations, and laboratory.

A practical course dealing with such topics as the theory and use of lenses, development and developers, enlargements, lantern slides, and the art of photography.

Prerequisites: Courses 1 and 2 or their equivalent.

13. **THE THEORY OF OPTICAL INSTRUMENTS.** Autumn quarter. 3 h.

A study of the elementary principles of optics and their application to the theory of optical instruments. The construction, performance, and uses of such instruments as the eye, camera, telescope, microscope, projection lantern, spectroscope, polariscope, etc., will be explained in some detail.

Prerequisites: Courses 1 and 2 or their equivalent.

14. **LIGHT.** Winter quarter. Lectures, one hour; two three-hour laboratory periods. 3 h.

A course designed to give the student a critical knowledge of the fundamental phenomena of light. The laboratory work consists of accurate measurements in dispersion, interference, diffraction, and polarization.

Prerequisites: Courses 1, 2, and 13.

15. **ELECTRIC WAVES AND RADIO-COMMUNICATION.** Autumn quarter. 3 h.

A study of electromagnetic waves and the theory of radio-communication involving at least a fair knowledge of electricity and magnetism.

Prerequisites: Courses 6 and 7 or their equivalent.

16. **WIRELESS TELEGRAPHY AND TELEPHONY.** Winter quarter. 3 h.

A course dealing with practical methods and the theory and functions of the various apparatus employed.

Prerequisite: Course 15 or its equivalent.

17. **ELECTRICAL MEASUREMENTS III.** Spring quarter. Two three-hour periods. 2 h.

A course in electrical measurements at radio frequencies intended primarily to supplement Course 16, but may be taken by those having had Courses 6 to 9 inclusive.

18. **VECTOR ANALYSIS.** Autumn and winter quarters. 3 h. Spring quarter. 2 h. Not given 1921-1922.

A study of vector analysis as developed by Gibbs with applications to problems in mathematical physics.

Prerequisites: Courses 4, 6 and calculus; differential equations advised.

40. **DESCRIPTIVE ASTRONOMY I.** Autumn quarter. 3 h.

A course conducted by means of lectures and recitations. It is designed as a course for those wishing a general knowledge of the principal facts, theories, and methods of astronomy and provides a necessary introduction to Course 41. The lectures are illustrated by slides, models, and apparatus.

Prerequisite: An elementary knowledge of trigonometry.

41. **DESCRIPTIVE ASTRONOMY II.** Winter quarter. 3 h.

A continuation of Descriptive Astronomy I.

Prerequisite: An elementary knowledge of trigonometry.

42. **INTRODUCTION TO MATHEMATICAL ASTRONOMY.** Winter and spring quarters. 2 h.

A course dealing with selected portions of spherical, practical, and theoretical astronomy involving mathematical treatment of intermediate difficulty.

Prerequisites: Courses 4, 40, and calculus; differential equations advised.

Courses in the College of Engineering may be found on page 189, and those in the Graduate School on page 221.

PSYCHOLOGY

1. GENERAL PSYCHOLOGY. (Education 1.) Two sections. Autumn and winter quarters. M. W. F. 1:00, 2:00, with an additional hour to be arranged for recitations and conferences. 3 h. Counts for the minimum requirement in psychology.

This course gives, by means of lectures, recitations, experiments, and demonstrations, a general survey of the essential facts and fundamental laws of mind. It is prerequisite to all other courses in psychology and to the courses in education. The student who expects to make psychology or education a major should take this course in his sophomore year.

2. COMPARATIVE PSYCHOLOGY. (Education 2.) Spring quarter. M. Tu. W. F. 1:00. 4 h. Continuation of Course 1. Counts for the minimum requirement in psychology.

A systematic study of mental development in the race and in the individual. The course will sketch the development of the nervous impulse, of animal sense organs with reference to their habits, of instincts and intelligence in animals, and in cases of arrested development. With these simpler facts as a basis the development of mental functions in the individual in childhood and adolescence will be discussed with reference to educational theory.

3. ADVANCED PSYCHOLOGY. Autumn quarter. Tu. Th. 9:00. 2 h. Not given 1920-1921. Does not count for the minimum requirement in psychology.

Lectures, discussions, readings, and a thesis.

An intensive study of selected problems; introspective exercises and an analytic study of mental phenomena.

Prerequisite: Course 1 or its equivalent.

4. **PATHOLOGICAL PSYCHOLOGY.** Winter and spring quarters. Tu. Th. 9:00. 2 h. Open on consultation. Does not count for the minimum requirement in psychology.

Lectures, readings, and a thesis.

Disorders of sensation, memory, imagination, association, the emotions, and volition. As Course 2 traces the development of mental functions this course will discuss the order of their impairment. Mental hygiene and a study of such psychoses as throw light on the general and genetic problems of psychology.

Prerequisites: Two courses in psychology.

5. **EXPERIMENTAL PSYCHOLOGY.** Three quarters. Tu. Th. 1:00-3:00, laboratory; 3:00, lecture. 3 h. Counts for the minimum requirement in psychology.

This course serves as an introduction to experimental psychology and aims to familiarize the student with modern psychological methods, apparatus, and results. Typical experiments and demonstrations in the psychology of the senses, feeling, and movement. Experiments in perception and the higher mental processes; time, intensity, and extensity of mental phenomena.

6. **EDUCATIONAL PSYCHOLOGY.** (Education 2.) Spring quarter. M. W. F. 2:00. 3 h. Continuation of Course 1. Counts for the minimum requirement in psychology.

Lectures, readings, and a thesis.

The principles of psychology, and the results of experimental pedagogy which are modifying the course of study and methods of instruction in the older schools of this country will be presented in this course. It is recommended that those students who are primarily interested in education take this course as a continuation of Course 1.

Prerequisite: Course 1 or its equivalent.

7. **THE PSYCHOLOGY OF GRAMMAR SCHOOL AND HIGH SCHOOL SUBJECTS.** Tu. Th. 10:00. 2 h.

Lectures, recitations, and a thesis.

This course describes the mental functions involved in the mastery of each school subject of grammar school and high

school grade. The topics will be discussed from the point of view of classroom practice, then from that of experimental inquiry, and finally from the point of view of the causes of failure in different subjects. The purpose of the course is to apply the principles of psychology directly to teaching.

8. **THE PSYCHOLOGY OF ADVERTISING.** Autumn quarter. 2h.

Laboratory exercises and recitations.

The strength of advertisements of various classes will be tested by a rather accurate statistical method. The same method will be applied to advertisements written by students. Size, position, medium, headlines, legibility, and various other problems of advertising will be studied.

9. **MENTAL TESTS.**

(a) Winter and spring quarters. Tu. Th. 10:00. 2h. Lectures, practice, and readings.

The lectures will describe the more important tests of intelligence and motor processes and their application both to children and adults; and the results obtained from the recent wide use of psychological examinations. Under supervision each student will be required to make a number of selected tests.

(b) Spring quarter. M. W. F. 10:00. 3 h.

The same as (a) except that a somewhat smaller number of tests will be required of the students.

10. **SOCIAL PSYCHOLOGY.** (Education 13.)

11. **ANATOMY OF THE NERVOUS SYSTEM.**

See announcement of the School of Medicine.

For courses for graduates only, see page 222.

ROMANCE LANGUAGES

FRENCH

1. **BEGINNERS' COURSE.** Three quarters. 8:00, 9:00, 3:00. 5 h.
Grammar, pronunciation, translation, dictation.

1a. **INTERMEDIATE COURSE.** Three quarters. 11:00. 3 h. For students who have had one year of high school French.

2. SECOND YEAR READING COURSE. Three quarters. M. W. F. 9:00, 11:00. 3 h.

Modern French stories and plays; selected lyrics; general view of the history of French literature.

Prerequisite: Course 1, or two years of high school French. Students are advised to take Course 3 with Course 2.

3. SECOND YEAR PROSE COMPOSITION AND ORAL PRACTICE. Three quarters. Tu. Th. 9:00. 2 h.

Review of French grammar; phonetics.

Prerequisite: Course 1, or two years of high school French. Students are recommended to take Course 2 with Course 3.

4. SEVENTEENTH CENTURY FRENCH.* Autumn quarter. M. W. F. 9:00. 3 h.

French classic tragedy; Corneille, Racine. Advanced prose composition.

5. SEVENTEENTH CENTURY FRENCH.* Winter quarter. M. W. F. 9:00. 3 h.

Comedy; Molière. Advanced prose composition.

6. SEVENTEENTH CENTURY FRENCH.* Spring quarter. M. W. F. 9:00. 3 h.

Malherbe, Boileau, La Fontaine, Mme. de Sévigné, Mme. de la Fayette, et al. Advanced prose composition.

7. EIGHTEENTH CENTURY FRENCH.* Autumn quarter. M. W. F. 9:00. 3 h. Not given in 1921-1922.
1700-1750.

8. EIGHTEENTH CENTURY FRENCH.* Winter quarter. M. W. F. 9:00. 3 h. Not given in 1921-1922.
1751-1800.

9. EIGHTEENTH CENTURY FRENCH.* Spring quarter. M. W. F. 9:00. 3 h. Not given in 1921-1922.
The French theater of the eighteenth century.

10. NINETEENTH CENTURY FRENCH.* Autumn quarter. M. W. 11:00 3 h.
Romantic school.

* Given in alternate years.

11. NINETEENTH CENTURY FRENCH.* Winter quarter. M. W. 11:00.
3 h.
Realistic and Naturalistic Schools.
12. NINETEENTH CENTURY FRENCH.* Spring quarter. M. W. 11:00.
3 h.
Modern movements in French literature with literary criticism.
13. SIXTEENTH CENTURY FRENCH.* Three quarters. M. W. 11:00.
3 h. Not given in 1921-1922.
Rabelais, Montaigne, the Pléiade.
14. THE ORIGINS AND DEVELOPMENT OF THE FRENCH DRAMA UP TO
THE PRESENT TIME.* Winter quarter. M. W. 11:00. 2 h.
15. THE ORIGINS AND DEVELOPMENT OF THE NOVEL IN FRANCE.*
Spring quarter. M. W. 11:00. 2 h.
16. FRENCH CONVERSATION AND DISCUSSION. Two quarters. M. W.
F. 9:00. 3 h.

For courses for graduates only, see page 223.

SPANISH

1. BEGINNERS' COURSE. Three quarters. 8:00, 9:00, 10:00, 1:00. 5 h.
Grammar, pronunciation, translation, dictation.
2. SECOND YEAR READING COURSE. Three quarters. M. W. F. 9:00,
11:00. 3 h.
General view of Spanish literature. Spanish stories, plays,
and lyric verse.
Prerequisite: Course 1, or two years of high school Spanish. Students are recommended to take Course 3 with Course 2.
3. SECOND YEAR COMPOSITION AND ORAL PRACTICE. Three quarters.
Tu. Th. 9:00. 2 h.
Prerequisite: Course 1, or two years of high school Spanish. Students are recommended to take Course 2 with Course 3.

* Given in alternate years.

4. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Autumn quarter. M. W. F. 10:00. 3 h.
The eighteenth century.
5. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Winter quarter. M. W. F. 10:00. 3 h.
The Romantic School.
6. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Spring quarter. M. W. F. 10:00. 3 h.
Modern literature. The literature of Spanish America.
7. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Autumn quarter. M. W. F. 10:00. 3 h.
The sixteenth century. Not given in 1921-1922.
8. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Winter quarter. M. W. F. 10:00. 3 h.
Cervantes, Lope de Vega, et al. Not given in 1921-1922.
9. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Spring quarter. M. W. F. 10:00. 3 h.
1621-1700. Not given in 1921-1922.
10. ADVANCED SPANISH COMPOSITION AND ORAL PRACTICE. Th. 11:00.
1 h.
11. SPANISH CONVERSATION AND DISCUSSION. Two quarters. M. W. F. 9:00 3 h.

For courses for graduates only, see page 224.

ITALIAN

1. BEGINNERS' COURSE. Three quarters. M. W. F. 3 h.
Grammar, pronunciation, translation, dictation.
2. DANTE'S DIVINE COMEDY.* Three quarters. M. W. F. 3 h. Not given in 1921-1922.
3. GENERAL VIEW OF ITALIAN LITERATURE.* Autumn quarter. M. W. F. 3 h. Not given in 1921-1922.
From the beginning to 1500.

* Given in alternate years.

4. GENERAL VIEW OF ITALIAN LITERATURE.* Winter quarter. M. W. F. 3 h. Not given in 1921-1922.

The cinquecento.

5. GENERAL VIEW OF ITALIAN LITERATURE.* Spring quarter. M. W. F. 3 h. Not given in 1921-1922.

From 1600 to the present time.

For courses for graduates only, see page 225.

NOTE—Students are recommended to take up the Romance Languages in the following order: French, Spanish, Italian. They should not elect courses simultaneously in Spanish and Italian without consulting the instructor.

ELECTIVES IN THE PROFESSIONAL SCHOOLS

In accordance with the general plan outlined on page 61, the courses tabulated below may be elected in the professional schools.

COLLEGE OF ENGINEERING

The following subjects in the College of Engineering may be taken by all students in the College of Arts and Sciences:

Mechanical Drawing, 4; Freehand Drawing, 3; Descriptive Geometry, 4; Surveying, 12; Least Squares, 3; Applied Mechanics, 6; Graphic Statics, 4; Kinematics, 3; Hydraulics, 4; Thermodynamics, 3; Dynamo Electric Machinery, 6.

SCHOOL OF LAW

Students in the College of Arts and Sciences in their fourth year who declare their intention of proceeding to the degree LL.B. in the University of Colorado, may be allowed credit for thirty-three hours on the completion of all work required in the freshman year of the School of Law.

SCHOOL OF MEDICINE

The two degrees of M.D. and A.B. may be conferred on the completion of seven years' work, one year's credit (45 hours) being allowed on the completion of the full freshman work in the School of Medicine.

* Given in alternate years.

Under this arrangement a student would naturally choose either zoology or chemistry as a group major.

Students in the junior or senior year in the College of Arts and Sciences, on the approval of their major professor and the Dean, may be allowed to elect up to forty-five hours in the School of Medicine from the following subjects: Anatomy, 13; Histology and Embryology, 12; Freshman Physiology, 12; Sophomore Physiology, 3; Bacteriology, 7; Advanced Bacteriology, 4; Biochemistry, 12; Advanced Biochemistry, 3.

COLLEGE OF COMMERCE

FACULTY

FREDERICK A. BUSHEE, Ph.D.,
Director of the College of Commerce.

The Faculty of the College of Commerce consists of Professors and Instructors whose work contributes to the courses.

GENERAL STATEMENT

FUNCTION

The College of Commerce was opened September, 1906. Its purpose is to provide professional training for the practical demands of business. It aims to prepare men for careers in Domestic and Foreign Commerce and Banking, Insurance, Transportation, Trade and Industry, Journalism, and in branches of the Public Service, like the Consular, in which a knowledge of business is essential. Heretofore universities and colleges have done all they could for the young man who wishes to become a minister, teacher, lawyer, physician, journalist, or engineer. The College of Commerce is developed in response to the demands of (1) enlarged commercial operations, (2) the public service, (3) the desire of parents to give their sons a college education and at the same time prepare them for their life work in business.

It is well known that the knowledge of the details of any particular line of business can be acquired only by actual experience. But the broad training given students in this department of the University will enable them to acquire the routine technicalities of any concern more easily than those whose minds have not been made flexible and acute by systematic training. They will thus the more readily assume positions of leadership and responsibility in the business world.

The curriculum of the College of Commerce is prepared with the following aims in view: (1) To furnish a certain amount of culture work which is the mark of college training. (2) To familiarize the student with the nature and workings of the industrial organism. This is attempted by studies in commercial geography, economics and history of commerce, transportation, banking, business organization and management. (3) To impart a certain amount of knowledge of the physical and chemical sciences and their applications to the industrial arts. (4) To give an acquaintance with the articles of commerce and the various industrial processes through which they pass. (5) To make the student acquainted

with the principles of commercial law. (6) To supply an equipment in modern languages. (7) To afford an opportunity to acquire some knowledge of a particular line of trade.

ORGANIZATION

The College of Commerce offers four courses: 1. Banking. 2. Manufacturing. 3. Journalism. 4. Trade, Transportation, and Consular Service.

ADMISSION AND FEES

The requirements for admission and the fees are the same as for the College of Arts and Sciences. See pages 28, 36.

SUBJECTS IN THE COLLEGE OF COMMERCE*

(REQUIRED FOR GRADUATION)

FRESHMAN YEAR

	I. Banking	II. Mfrg.	III. Jour.	IV. Trade, Consular Service, Etc.
ENGLISH LANGUAGE...	9	9	9	9
SCIENCE	15	(Chem.)15	15	15
HISTORY	9	9	9	9
FRENCH, GERMAN, OR SPANISH	15	15	(French) 15	15
PHYSICAL EDUCATION...	3	3	3	3
	—	—	—	—
	51	51	51	51

SOPHOMORE YEAR

			(Ec. Bot.) 3 or (Ec. Geol.) 6
MATH., SCIENCE.....	(Math.)15	(Math.)15	(Biol.)6
PSYCHOLOGY .....	..	..	9
HISTORY OR ECON.....	15	15	15
FREE ELECTIVES	15	15	15
PHYSICAL EDUCATION...	3	3	3
	—	—	—
	48	48	48

* In addition to regular courses in the departments open to election, provision will be made for lectures on current problems and practical topics by prominent business men.

JUNIOR AND SENIOR YEARS

COMMERCIAL LAW....	6	6	6	6
ECONOMICS	40	40	40	40
ENGLISH LANGUAGE AND LITERATURE OR CLASSICS .....	..	..	30	..
PHYSICS .....	..	15	..	..
FREE ELECTIVES.....	41	26	11	41
	—	—	—	—
	87	87	87	87

The following courses are especially recommended for students in the College of Commerce:

Principles of Advertising.
 Business Organization and Scientific Management.
 History of Commerce.
 Commercial Geography.
 Economic History of the United States.
 Taxation.
 Transportation.
 Corporations.
 Money and Banking.
 Journalism.
 International Law and Relations.
 Modern Accounting.
 Life Insurance.
 Mathematical Theory of Investments.
 Business Cycles.
 Marketing.
 Salesmanship.

For a further description of these courses, see departments of Mathematics, and Economics and Sociology in the College of Arts and Sciences.

COLLEGE OF EDUCATION

FACULTY

HARRY M. BARRETT, A.M., LITT. D.,
Director of the College of Education.

The Faculty of the College of Education consists of Professors and Instructors in the College of Arts and Sciences whose work contributes to the various courses.

GENERAL STATEMENT

ORGANIZATION

A College of Education, to be a division of the College of Arts and Sciences, was authorized by the Board of Regents in January, 1908. The report of the committee on a course of study was adopted in April, and the College was regularly opened for work in September of that year.

FUNCTION

It is intended that this College shall provide systematic and comprehensive training for those who may choose education as a *profession*. That there may be such a profession becomes every year more apparent, and it becomes apparent, too, that preparation for service in it must be as complete as for service in other professions. No human endeavor is more important than education; no class of workers should be more carefully prepared than teachers. The need of the present time, expressed in most quarters in a demand, is that many of the teachers in the elementary schools, all of the teachers in the high schools, and all persons engaged in supervision of instruction shall have as a minimum of scholarship the A.B. degree, or its equivalent, and shall have made intensive study of the history, theory, and practice of education. There is need in each state for at least one professional school of collegiate rank which shall afford opportunity for training, both in theory and practice, for teaching, supervisory, and administrative positions in elementary, secondary, and normal schools.

The College of Education is designed to satisfy this need; it is a device of organization and administration to secure for the teacher studies along pertinent lines and in right proportions and sequence. The student looking toward teaching as a profession is assisted and directed in the choice and prosecution of his work from the time of his matriculation until his graduation. He does not sacrifice anything of the culture of the Arts and Sciences course.

DESIGN OF CURRICULUM

The curriculum is designed to furnish to the prospective teacher who would be thoroughly equipped for his work:

1. Courses calculated to give sound scholarship and that culture rightly expected of the college graduate.
2. Courses in the subjects he expects to teach, of such character and so organized in sequence that when graduated he will be in some measure an authority on these subjects.
3. Courses that will give knowledge of:
 - a. The constitution and needs of society.
 - b. Child and adult natures and their possibilities for modification.
 - c. The educational values of the various school subjects.
 - d. The art of instruction—this knowledge to be both general and concrete and to come in large measure from actual practice in teaching.
 - e. The principles underlying the organization and management of public schools.
 - f. Educational history and its significance, both for the present and the future.

ADMISSION, FEES, AND ADVANCED STANDING

See pages 27, 28, 36.

COURSES OF STUDY LEADING TO THE DEGREE BACHELOR OF ARTS AND A BACHELOR'S DIPLOMA IN EDUCATION

The course of study of the College of Education covers a period of four years, 186 hours of credit being required for graduation. Graduates receive the degree of Bachelor of Arts and a Bachelor's Diploma in Education, the latter certifying that the holder has specialized in the theory and art of education.

The general regulations of the College of Arts and Sciences apply in the College of Education.

The course of study is distributed as follows:

English Language.....	9 hours
Classics and Mathematics, Mathematics and Science, or Science and Classics	18 hours
History or Economics	9 hours
Psychology (General and Educational)	9 hours
History and Philosophy of Education	9 hours
Principles of Education	6 hours
Public Education: Its Organization and Management	3 hours
Principles and Practice of Teaching.....	9 hours
Public School Program of Studies	3 hours
Principles of Economics, or additional Education or Psychology, or Sanitary Science, or Sociology	6 hours
Group Electives, Major and Minors (subjects the student expects to teach)	75 hours

Students in this department should be particularly careful to take Psychology and History of Education in their sophomore year.

GROUPS OF MAJORS AND MINORS

The purpose of the group elective requirement is to secure on the part of the teacher a thorough and systematic knowledge of the subject or subjects he proposes to teach. Usually the teacher in the secondary school is required to teach two or more subjects. Hence it is desirable that he should have a careful and extensive preparation in one subject and sufficient preparation for teaching at least the elementary steps of two additional subjects.

The groups of majors and minors are uniform with those of the College of Arts and Sciences. See page 64.

TEACHERS APPOINTMENTS OFFICE

See page 51.

STATE DIPLOMAS

The 17th General Assembly enacted House Bill No. 423, in which Sections 4 and 7 provide as follows:

Sec. 4. The State Board of Education shall issue State diplomas upon application, without examination, to applicants who shall

be graduates of colleges situated within the State of Colorado, which maintain a standard four-year course of collegiate work and require four standard years of high school work or its equivalent for admission, and who shall also exhibit evidence satisfactory to the State Board of Education of good moral character, and who shall also present evidence to the State Board of Education that they have twenty-four months of successful teaching experience, and who shall also produce evidence satisfactory to the State Board of Education, of professional training equivalent to at least one-sixth of a standard four-years' college course in at least three of the following groups of subjects, one of which shall be Practice Teaching, to-wit:

- (1) General and Educational Psychology.
- (2) History of Education.
- (3) Science and Principles of Education.
- (4) Practice Teaching and Special Methods.
- (5) Organization and Management of Schools.
- (6) Philosophy, Sociology, and Anthropology.

Sec. 7. State diplomas, granted under the provisions of this act, shall license the holders thereof to teach in the public schools of any county, city, town, or district in the State without the necessity of any other examination for a period of five years, unless sooner revoked by the State Board of Education, and at the expiration of said time, the same may be renewed for a like period of five years in the discretion of the State Board of Education, and at the expiration of this time, the same may be renewed for life upon presentation to the State Board of Education of satisfactory evidence of professional growth and efficiency; *Provided*, That the State Board of Education shall issue upon application, without examination, to those persons who possess the qualifications set forth in Section 4 of this act, experience in teaching alone excepted, a temporary, non-renewable certificate to teach for five years in the public schools of Colorado.

COLLEGE OF MUSIC

FRANK WILBUR CHACE, Mus.Doc.,

Director of the College of Music.

GENERAL STATEMENT

The department of Music of the College of Arts and Sciences was expanded by the Board of Regents in September, 1920, into the College of Music, leading to the degree Bachelor of Music. The definite aim of the College is two-fold: (1) To provide a thorough training for students who intend to follow the profession of music as teachers and composers, or who may wish to devote themselves chiefly to musical criticism and literature; (2) To develop an intelligent general taste and understanding, a sympathy for music, as for other branches of culture, and to form a body of intelligent and sympathetically receptive listeners for the masterpieces of music.

COURSES

Courses of instruction include pianoforte playing, organ playing and choir directing; vocal instruction, including interpretation; violin, viola, and violoncello playing; classes in ensemble playing in stringed instruments, piano and organ; public school music and instruction in grade work; theory and history of music, which includes harmony, counterpoint, composition, analysis of form, instrumentation, and terminology; appreciation of music by lectures, illustrated by the organ, piano, voice, and victrola.

A festival chorus is organized annually for the purpose of studying and singing oratorios, cantatas, and opera suitable for concert presentation. All candidates for the degree Bachelor of Music will be required either to play in the orchestra or sing in the chorus.

Courses in the College of Arts and Sciences are open to regular students of the College of Music, and certain courses therein are required for the degree Bachelor of Music.

The Assembly Choir, the Glee Club, and various other activities are open to students of the College of Music.

REQUIREMENTS FOR ADMISSION

The requirements for admission are the same as those for the College of Arts and Sciences. See pages 28-30. For beginners and for younger students not qualified to enter the College of Music a Junior Department will be maintained under the direct supervision of the College.

TUITION AND FEES

See page 36.

Instruction in piano, voice, organ and violin (individual), per quarter: One lesson per week.....	\$12.00-\$25.00
Two lessons per week	24.00- 50.00
Sight Singing and Ear Training, per quarter	5.00

SCHEDULE

FRESHMAN YEAR

*Piano, Voice, Violin, or Organ (Major).....	12 hours
†Minor subject—Elective	6 hours
Harmony	6 hours
Appreciation of Music	3 hours
Ear Training (two years).....	0 hours
Choral Union or Orchestra (required).....	0 hours
Freshman English	9 hours
Foreign Languages (French, German, or Italian).....	15 hours
	<hr/> 51 hours

SOPHOMORE YEAR

Piano, Voice, Violin, or Organ.....	12 hours
Minor subject—Elective	6 hours
Ear Training and Sight Singing.....	3 hours
Advanced Harmony and Strict Counterpoint.....	6 hours
History of Music	6 hours
Choral Union or Orchestra (required).....	0 hours
Physical Training	3 hours
**Foreign Languages (French, German, or Italian).....	15 hours
	<hr/> 51 hours

* The subject chosen as a major must be continued throughout the four years, excepting by consent of the Committee on Courses.

† The subject elected as a minor must be continued for two successive years, when another subject may be chosen for the succeeding years.

** There must be a good reading and pronouncing knowledge of two foreign languages. Students who do not need the full 15 hours to complete the requirement of two years' languages, may substitute free electives in the College of Arts and Sciences.

JUNIOR YEAR

Piano, Voice, Violin, or Organ.....	12 hours
Minor subject—Elective	6 hours
Counterpoint, Canon, and Fugue.....	6 hours
History of Music and Musical Form.....	6 hours
Sight Singing	3 hours
Choral Union, or Orchestra (required).....	0 hours
Survey of English Literature.....	9 hours
Recital	0 hours
	<hr/> 42 hours

SENIOR YEAR

Piano, Voice, Violin, or Organ (Major).....	12 hours
Minor subject—Elective	6 hours
‡Composition and Orchestration	6 hours
Choral Union or Orchestra (required).....	0 hours
Ensemble	3 hours
Acoustics (Scientific basis of Music).....	3 hours
Psychology or Free Elective (students who elect to teach must choose Psychology)	9 hours
Recital	3 hours
	<hr/> 42 hours

‡ This must include an original composition, either sacred or secular, containing at least four movements and sufficiently long to occupy fifteen to twenty minutes in performance, and must be:

- (a) A Chorus in four parts, with a short instrumental introduction.
- (b) A Recitative and Solo.
- (c) A Quartette for voices only.
- (d) A Four-part Vocal Fugue.

Number (a), (b), and (d) must have accompaniments for string band only.

COLLEGE OF ENGINEERING

FACULTY

GEORGE NORLIN, Ph.D., LL.D., President of the University.

HERBERT S. EVANS, E.E., Dean; Professor of Electrical Engineering.

JOHN A. HUNTER, M.E., Professor of Mechanical Engineering.

WHITNEY C. HUNTINGTON, M.S., C.E., Professor of Civil Engineering.

CHARLES S. SPERRY, A.B., C.E., Professor of Engineering Mathematics.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

*RUSSELL D. GEORGE, A.M., Professor of Geology.

OLIVER C. LESTER, Ph.D., Dean of the Graduate School; Professor of Physics.

RALPH D. CRAWFORD, Ph.D., Professor of Mineralogy and Petrology.

JAY W. WOODROW, Ph.D., Professor of Physics.

FRANK E. E. GERMANN, A.B., Dr. ès Sc., Professor of Chemistry.

FRANK S. BAUER, M.E., Associate Professor of Mechanical Engineering.

FRANK G. ALLEN, B.S. (M.E.), Associate Professor of Engineering Drawing.

IVAN C. CRAWFORD, C.E., Associate Professor of Civil Engineering.

SIEBELT L. SIMMERING, M.S., M.E., Associate Professor of Mechanical Engineering.

W. CLINTON DUVALL, B.S. (E.E.), Associate Professor of Electrical Engineering.

JONTA BOEN MARCELLUS, B.S. (C.E.), Associate Professor of Civil Engineering.

†OSCAR A. RANDOLPH, Ph.D., Associate Professor of Physics.

WILLIAM B. PIETENPOL, Ph.D., Associate Professor of Physics.

PAUL M. DEAN, Ph.D., Associate Professor of Chemistry.

WALTER F. MALLORY, B.S. (M.E.), Assistant Professor of Mechanical Engineering.

W. OTTO BIRK, A.M., Assistant Professor of Engineering English.

* On leave of absence, 1920-1921.

† Died April 11, 1920.

- CHARLES A. HUTCHINSON, A.M., Assistant Professor of Engineering Mathematics.
- MERVIN S. COOVER, E.E., Assistant Professor of Electrical Engineering.
- HORACE B. VAN VALKENBURGH, M.S., Assistant Professor of Chemistry.
- CHARLES F. POE, A.M., B.S. (Phar.), Assistant Professor of Chemistry.
- SEVERANCE BURRAGE, B.S., D.P.H., Ph.D., Assistant Professor of Bacteriology.
- CHARLES M. MCCORMICK, E.E., Instructor in Electrical Engineering.
- BENJAMIN D. CORNELL, A.M., Instructor in Chemistry.
- WAYNE S. BEATTIE, B.S. (M.E.), Instructor in Mechanical Engineering.
- WILLIAM F. BRUBAKER, B.S. (C.E.), Instructor in Engineering Drawing.
- FRED R. DUNGAN, B.S., Instructor in Civil Engineering.
- ROBERT H. CANFIELD, B.S. (C.E.), Instructor in Civil Engineering.
- MURRAY F. SKINKER, B.S. (E.E.), Instructor in Engineering Mathematics.
- ARTHUR H. WARNER, A.B., B.S. (E.E.), Instructor in Physics.
- CLAUDE N. SETTLES, A.B., Instructor in Engineering English.
- WALTER K. NELSON, B.S. (E.E.), Instructor in Engineering Mathematics.
- ALEXANDER ELLETT, Instructor in Physics.
- CHESTER B. ASHCRAFT, Instructor in Mechanical Engineering.
- MYRON E. WITHAM, B.S., C.E., Instructor in Civil Engineering.
- EUGENE C. HARVEY, B.S. (C.E.), Instructor in Civil Engineering.
- RUSSELL H. LINDSAY, E.E., Instructor in Electrical Engineering.
- HENRY ANTHONY PAGE, B.S. (E.E.), Instructor in Engineering Mathematics.
- HENRY C. THOMPSON, JR., B.S. (M.E.), Instructor in Engineering Drawing.
- KENNETH I. WHITE, B.S. (Ch.E.), Instructor in Mechanical Engineering.
- FRANK STUBBS, JR., Instructor in Engineering Mathematics.
- AGNES WRIGHT, A.B., Instructor in Engineering Mathematics.
- ELSIE EAVES, B.S. (C.E.), Instructor in Engineering Mathematics.
- E. R. VICKLUND, B.S. (M.E.), Instructor in Mechanical Engineering.

GENERAL STATEMENT

PURPOSE

The College of Engineering was established by the Regents in 1893. The aim in engineering education is to give a thorough training in science, mathematics, language, and mechanics, and in addition to give fundamental courses in engineering so that the graduate may be prepared to enter the profession of engineering.

The work of the first two years of all courses, with a few minor exceptions, is the same. It is aimed in these years to lay a broad foundation for the more specialized work of the last two years. To this end the work is largely theoretical in character, and comprises courses in mathematics, physics, mechanical drawing, rhetoric, and the elements of engineering subjects. Class-room and lecture work is supplemented wherever practicable by laboratory courses.

In the last two years the work is more specialized, and the fourth year is almost entirely devoted to technical work in the several branches of engineering.

REQUIREMENTS FOR ADMISSION

While the regular time for entrance to the College of Engineering is the opening of the first quarter, the subjects are repeated in such a manner that students entering at the opening of any quarter may proceed with their work without serious loss of time.

For details with reference to admission, see pages 30, 31.

ADMISSION TO ADVANCED STANDING

Students from other institutions will be admitted to any class not later than the autumn quarter of the senior year on passing examinations in the subjects given in the preceding years in the College of Engineering, or on presentation of satisfactory certificates, showing that the required work has been done in other technical schools. A certificate of honorable dismissal will also be required.

Graduates from other colleges will be admitted without examination, and allowed to pursue such courses as their previous work will permit.

By proper election of subjects in the collegiate course, such as sciences, mathematics, and languages, a graduate of the College of Arts and Sciences can obtain his engineering degree in two years. Such a course affords a very broad general training, and is to be highly recommended. Students who expect to complete both the arts and engineering courses should consult the Dean of the College of Engineering before registering in the University.

DEGREES

Upon the satisfactory completion of the prescribed and elective work in any course, the degree Bachelor of Science in the course pursued will be conferred.

For information regarding courses leading to the degrees Master of Science, Civil Engineer, Electrical Engineer, and Mechanical Engineer, see the Graduate School.

EQUIPMENT

BUILDINGS.

ENGINEERING I.—Engineering I is a laboratory building of fire-proof construction. The one-story sections contain the materials testing laboratory, the hydraulics laboratory, the road materials testing laboratory, the direct current laboratory, the alternating current laboratory, the high tension laboratory, the photometry laboratory, the standardizing laboratory, and the Engineering Library. The one-story sections are lighted by means of a modified saw-tooth roof. The office of the Dean of Engineering, the offices, recitation and drawing rooms of the Electrical Engineering Department are on the first floor of the two-story section. The offices, recitation and drawing rooms of the Civil Engineering Department are on the second floor of the two-story section. The total floor space in this building is 28,000 square feet.

ENGINEERING II.—Engineering II is a shops and laboratory building. The one-story sections contain the wood shops, the foundry, the machine shop, the forge shop, and the mechanical engineering and oil-testing laboratories. The one-story sections are lighted

by means of a modified saw-tooth roof. The two-story section contains the offices and recitation rooms of the Department of Mechanical Engineering. The total floor space in this building is 22,000 square feet.

ENGINEERING III.—Engineering III is used for freshmen and sophomore work. The departments of Engineering Drawing, Engineering Mathematics, and Engineering English have their offices and recitation or drawing rooms in this building. The Civil Engineering Department has its surveying rooms, and the Mechanical Engineering Department its drawing rooms, in this building. The total floor space is 10,240 square feet.

CIVIL ENGINEERING EQUIPMENT.

The Department of Civil Engineering possesses an extensive equipment of surveying instruments of the various standard makes, consisting of engineer's transits, solar attachments, mining transits, compasses, engineer's levels, solar compasses, plane tables, a sextant, barometers, chains and tapes, as well as smaller instruments.

The department has two bridge extensometers, manufactured by the Wissler Instruments Works, together with other necessary equipment for the determination of stresses in bridge trusses due to static and moving loads.

Standard apparatus for determining color, turbidity, and other physical properties of water, has been added to the facilities for instruction in sanitary engineering.

The department also possesses an ample collection of drawings, blue prints, and photographs for use in design.

Cement Laboratory.

The cement laboratory is equipped with a 2,000-pound Fairbanks shot machine, a 2,000-pound Riehle cement machine, briquette molds, tanks, Gilmore needles, vicat apparatus, sieves, hot water tanks, specific gravity apparatus, slate slabs, sample barrels of cement, and other necessary apparatus.

Hydraulics Laboratory.

The equipment of the hydraulics laboratory consists of tanks supplied with various shaped notches and orifices for discharge instruments, pipes arranged for determining resistance to flow in same, standard orifices and tubes. The laboratory also contains a

Venturi meter, water meters, piezometers, current meters, and a Doble 12-inch experimental water wheel equipped for experimental work, three centrifugal pumps, Pitot's tubes, a hook gage, platform scales, hose, and various smaller pieces of hydraulic apparatus.

Materials Testing Laboratory.

The materials testing laboratory is equipped with a 30,000-pound Olsen testing machine; a 100,000-pound Olsen testing machine; a 200,000-pound Riehle testing machine that will test a 16-foot beam and an 8-foot column; extensometers; compressometers; a 50,000-in.-lb. Olsen torsion testing machine; a stone saw; and miscellaneous small tools and apparatus necessary for making commercial tests of iron, steel, brick, stone, and wood. The laboratory is equipped with a brick rattler, and all other equipment necessary for making commercial tests of paving brick. The equipment of the cement laboratory is available for work in testing cements, mortars, and concrete.

Road Materials Testing Laboratory.

The equipment of the road materials testing laboratory consists of a Page impact machine for testing toughness of rock; a Page impact machine for cementation test; a two-cylinder abrasion machine, Deval type; a Dorry hardness machine; a grinding lap; drying oven; drill press; diamond stone saw; a ball mill; and other minor equipment for making commercial tests of road materials.

ELECTRICAL ENGINEERING LABORATORIES.

The Electrical Engineering laboratories are well equipped for the study of direct and alternating current appliances, electrical testing, and the investigation of problems concerning the design, installation, and operation of electrical apparatus.

Dynamo Laboratories.

The laboratories include in their equipment twelve complete motor-generator sets for testing purposes. These twelve sets range in capacity from one to fifty horse-power and include both direct current and alternating current motors and generators of various types and designs; some are direct connected, and some are belt connected. There are three double current generators that may be used as single-phase or three-phase synchronous converters, and

also a regulating-pole synchronous converter with special features. In addition there is a large amount of miscellaneous equipment such as a special convertible laboratory set, railway motors, Brush arc-lighting dynamos, etc. Switchboards with plugs and jacks, and arranged for trunking between different laboratories, are provided in each laboratory. Control devices and apparatus are provided for all equipment. Prony brakes and a cradle dynamometer are provided for individual tests. The University power plant is available for testing purposes and affords special opportunities for commercial and operation tests.

Transformer Laboratory.

The transformer equipment comprises four three-phase banks of transformers for various capacities; two sets of transformers for two to three-phase transformation, or vice versa; an auto-transformer of special design, giving wide range of voltages; a twelve light constant current transformer; a Cooper-Hewitt mercury-arc rectifier; and other transformers for special purposes.

Photometry Laboratory.

The four photometer rooms contain two Reichsanstalt photometers, one with a 475 centimeter scale, the other with a 250 centimeter scale equipped with both Bunsen and Lummer Brodhun screens, a special integrating arc-light photometer, a 5-foot Ulbricht sphere, and a Macbeth illuminometer. The standards include an amylacetate (Hefner) lamp, and *seasoned carbon and tungsten incandescent lamps certified by the United States Bureau of Standards. The necessary accessories for exact photometric work are included in the equipment.

Telephone Apparatus.

For the use of classes in telephony, there is a complete telephone laboratory equipment, consisting of a number of different types of subscribers' sets, together with the necessary central office apparatus and protective devices.

High Frequency and High Potential Equipment.

For the investigation of high tension and high frequency phenomena, the transformer laboratory is equipped with a 22,000 volt transformer, a 50,000 volt special testing transformer, a large condenser, and a number of Tesla coils of special construction.

In addition to the high frequency and high potential equipment described above, there is a three-unit oscillograph with a full complement of accessories for observing and photographing the actual wave shapes of alternating voltage, current, and flux. A one hundred and fifty mile adjustable artificial transmission line, equivalent to one phase of the Colorado Power Company's line is another piece of special apparatus in this laboratory.

Electrical Standardizing Laboratory.

The department has a very complete equipment for testing and calibrating all types of electrical measuring instruments for both alternating and direct currents.

Besides the standards, which are among the best obtainable, the equipment comprises a number of motor-generator sets from which may be obtained a wide range of voltages and currents, and all commercial frequencies and power factors.

Measuring Instruments.

The department possesses a large equipment of wattmeters, alternating and direct current ammeters and voltmeters of various ranges and representative makes.

A great variety of integrating wattmeters are used for experimental purposes, and synchronizers, water rheostats, lamp banks, a transformer bank, and other accessories are provided for testing work.

Commercial Testing.

The University power plant affords the students an excellent opportunity for making commercial tests. The equipment consists of a 150-K.W. three-phase slow speed unit; a 75-K.W. three-phase direct connected alternator with belted exciter; a 35-K.W. direct current compound generator, direct connected; a 25-K.W. steam turbine exciter unit; a 35-K.W. motor generator set; and a thoroughly modern ten-panel switchboard.

MECHANICAL ENGINEERING LABORATORY.

The Mechanical Engineering laboratory contains necessary apparatus for testing viscosity and other qualities of lubricating oils; calorimeters for determining dryness and heat of steam; injectors and water meters for measuring water for boiler trials; ther-

mometers and pyrometers for measurement of temperatures; Bunte gas burrettes and chemical reagents for tests of chimney flue gases; anemometers for study of heating and ventilation; calorimeters for the determination of the value of fuels; indicators, reducing motions and planimeters for indicator tests of engines; hydrometers for determinations of specific gravity of liquids; micrometers and extensometers for fine measurements; gauges and manometers for pressures; a Westinghouse Air Brake outfit; an hydraulic ram, engines, pumps, condensers, and a two-ton ice machine. The University power plant and heating system, consisting of four boilers of 600 horse-power capacity, a 225 horse-power Murry Corliss engine, a 125 horse-power Chuse engine, a Leyner air compressor, a 50 horse-power Harrisburg engine, several blowers and pumps, furnish opportunities for efficiency tests of boilers with different fuels and of the engines at varying loads.

Workshop Equipment.

The forge equipment consists of the latest type of Buffalo down-draft forges, each with anvil, providing accommodations for twenty students at each session, and also accessory tools for forging, welding, and tool dressing.

The foundry contains a Newton cupola furnace capable of melting two tons of iron per hour, ladles, flasks, and all necessary small tools, and a stock of patterns. The forges and cupola are served by three centrifugal fans, which are operated by a ten horse-power electrical motor.

The machine shop is equipped with iron workers' benches, planers, a milling machine, speed lathes, engine lathes, a shaper, grindstones, and other tools.

The wood shops occupy two rooms on the first floor; each shop has its own tool room, and is well equipped with benches and speed lathes for fitting and turning work.

GENERAL ENGINEERING DRAWING.

The apparatus for instruction and practice consists of over one hundred models, two folding plane frames of special design, a pantograph, a universal drafting machine, and numerous special drawing instruments. Besides the usual apparatus of frames, bath, and dark room for sun blue printing, the department has an electric blue printing machine.

ENGINEERING LIBRARY.

In addition to books on engineering and scientific subjects in the main University Library there is an engineering library located in Engineering 1. The Engineering Library contains files of bound volumes of proceedings and transactions of engineering societies, and of most of the best known engineering magazines in America and Europe. A trained librarian is in charge of the Engineering Library, which is operated as a branch of the main library of the University. The files of proceedings of societies and magazines are made more usable through a very complete set of indices to engineering literature. The library also contains the standard encyclopedias and dictionaries, as well as numerous standard reference books.

LABORATORY FEES (FOR MATERIAL)

A laboratory fee of \$2.00 per quarter hour is charged in all laboratory shop, and field courses in all departments except Engineering Chemistry and Engineering Physics.

The laboratory fees in Engineering Chemistry are \$2.75 for each term hour in the laboratory in Engineering Chemistry 2, 3, and 6, and \$1.75 per quarter hour for each laboratory hour in all other courses in Engineering Chemistry.

The laboratory fees in Engineering Physics are \$3.00 per quarter hour in Engineering Physics 51, and \$2.00 per quarter hour in all other courses.

A fee of \$1.00 per quarter hour is charged in all drawing and design courses.

The number of quarter hours for which fees are charged is shown by numbers in parentheses in the schedule of courses.

For fees in Geology, see page 37.

LIBRARY FEE

A library fee of \$1.50 per quarter is charged each student registered in the College of Engineering. The library fees are used for the purchase of books and periodicals for the Engineering Library.

ENGINEERING COURSES

CIVIL ENGINEERING

This course is especially arranged to meet the needs of the irrigation, highway, structural, and railway engineer; and has majors in hydraulics, construction of dams, construction of roads and pavements, location of roads and railroads, location of reservoirs and canals, water power engineering, irrigation engineering, structural engineering, and railroad engineering. While the work is made practical by giving the student a large amount of practice in the field, the drafting and computing room, and the laboratory, the main object is the development of the mental faculties and judgment of the student.

The general studies and surveying of the first two years lead up to courses in theoretical and applied mechanics, railroads, roads and pavements, hydraulics, graphic statics, and geodesy in the junior year, followed in the senior year by courses in bridge design, industrial building design, design of mill buildings and bins, water supply, sewerage, masonry construction, reinforced concrete construction, irrigation engineering, and railroad engineering.

Besides instruction in strictly engineering subjects, courses are given in economics, rhetoric, geology, bacteriology, and the law of contracts.

Numerous inspection trips are made during the junior and senior years, to give the students an opportunity to get in touch with the practical side of engineering work.

ELECTRICAL ENGINEERING

It is the aim of the Department of Electrical Engineering to provide thorough theoretical and practical training for those desirous of engaging in the various applications of electricity.

Electrical engineering work proper begins in the sophomore year with an elementary course in electricity and magnetism including laboratory work. In the junior year an advanced course in elec-

tricity and magnetism is given and in addition, illumination and photometry and a study of the design, construction, and operating characteristics of both continuous and alternating current apparatus.

The senior year is largely devoted to a study of the design and operation of alternating current apparatus, such as generators, synchronous and induction motors, rotary converters and transformers; distribution and transmission, electric traction and power plant construction and operation, lighting and metering; the telephone and telegraph; and other applications of electricity to the arts. The design of apparatus is studied by lectures and solution of problems in the drawing room.

Particular attention is given throughout to the proper correlation of classroom study to laboratory work. To this end courses are given in the testing and handling of the various types of direct and alternating current machinery. In connection with the work in lighting and illumination, complete tests are made of the various types of electric lamps. Frequent inspection trips are made to the numerous large power plants in the vicinity, and every opportunity is taken to acquaint the student with the engineering problems of his profession.

In addition to the purely engineering subjects, English, rhetoric, contracts, and organization and management are given.

MECHANICAL ENGINEERING

This course is intended to train students along the broad lines of mechanical engineering. In the second year the students are given practical instruction in elementary studies of the kinematics of machinery and of machine design.

In the junior and senior years the course includes the theory of machine design, valve-gear movements, applied mechanics of both building structures and moving machinery; thermodynamics, including the study of steam, gasoline, and refrigerator engines; the theory of direct current electricity, and practical instruction in designing specific machine and power plants; shop-work; thorough instruction in the electrical and mechanical laboratories, in efficiency tests of engines, boilers, motors, blowers, pumps, calorimeters, injectors, etc., as well as general tests of boiler feed waters, lubricating oils, cements, flue gases, steam, fuels, steel and iron. Students

are also given instruction in conducting practical duty trials of power plants.

CHEMICAL ENGINEERING

The great development in the United States during the last decade, of chemical and metallurgical industries, such as the manufacture of alkalies, fertilizers, beet sugar, Portland cement, by-products from coal and petroleum, acids from sulphide ores, plate glass, pottery etc., where a combined knowledge of mechanical engineering and chemistry is needed for competent supervision, has suggested the inauguration of this course. The course in chemical engineering is designed to give a major in chemistry and to give fundamental training in engineering. Students taking this course pursue courses in chemistry, physics, mathematics, and mechanics for the first two years; in the junior and senior years they are given special instruction in designing chemical machinery and in chemical analysis of fuels, gases, steel and iron, electrometallurgy, etc.

REQUIREMENTS FOR DEGREE BACHELOR OF SCIENCE IN ENGINEERING

CIVIL ENGINEERING

FRESHMAN YEAR*

AUTUMN QUARTER

Algebra (Eng. Math. 1a)†...	3
Trigonometry (Eng. Math. 2a)	2
Mechanical Drawing (Draw. 1)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 1).....	3
Physical Education	1 (1)
	<u>17</u>

WINTER QUARTER

Algebra (Eng. Math. 1b).....	3
Trigonometry (Eng. Math. 2b)	2
Mechanical Drawing (Draw. 2)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 2).....	3
Physical Education	1 (1)
	<u>17</u>

SPRING QUARTER

Analytic Geometry (Eng. Math. 3)	5
Descriptive Geometry (Draw. 3)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 3).....	3
Engineering Literature (English 4)	2
Physical Education	1 (1)
	<u>19</u>

SOPHOMORE YEAR

AUTUMN QUARTER

Calculus (Eng. Math. 4a)†...	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Plane Surveying (C.E. 1)....	4 (3)
Civil Engineering Lectures (C.E. 47)	2
Engineering Materials (C.E. 14)	3
	<u>18</u>

WINTER QUARTER

Calculus (Eng. Math. 4b)....	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Surveying and Mapping (C.E. 2)	3 (2)
Railroad Curves (C.E. 5)....	2 (1)
Roads and Pavements (C.E. 33)	4 (1)
	<u>18</u>

SPRING QUARTER

Calculus (Eng. Math. 4c)....	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Higher Surveying (C.E. 3)...	4 (3)
Technical Mechanics—Statics (C.E. 6)	3
Building Construction (C.E. 22)	2
	<u>18</u>

* All freshman students are required to attend technical lectures given each second week during the year.

† These references are to the description of courses. Figures in parentheses indicate the number of three-hour laboratory, drafting, or field periods.

JUNIOR YEAR

AUTUMN QUARTER

Mechanics of Materials (C.E. 8)	5
Technical Mechanics— Dynamics (C.E. 7).....	3
Geology (Geol. 3).....	3 (1)
Railroad Engineering (C.E. 34)	5 (2)
Materials Testing Labora- tory (C.E. 9).....	2 (2)
	<hr/>
	18

WINTER QUARTER

Framed Structures (C.E. 17)	5 (2)
Hydraulics (C.E. 11).....	3
Geology (Geol. 3).....	4 (1)
Technical Writing (Eng- lish 5)	2
Railroad Maintenance (C.E. 35)	2
Structural Drafting (C.E. 16)	2 (2)
	<hr/>
	18

SPRING QUARTER

Reinforced Concrete (C.E. 29)	3
Structural Analysis (C.E. 18)	3 (2)
Geodesy and Least Squares (Eng. Math. 6).....	5
Steam Engines and Boilers (M.E. 5)	3
Bacteriology (C.E. 37).....	3
Hydraulics Laboratory (C.E. 12)	1 (1)
	<hr/>
	18

SENIOR YEAR

AUTUMN QUARTER

Masonry Construction (C.E. 31)	3
Foundations (C.E. 32).....	2
Water Supply (C.E. 38).....	3
Structural Design (C.E. 23) ..	5 (5)
Engineering Economics (C.E. 36)	2
Bridge Construction (C.E. 19)	3
	<hr/>
	18

WINTER QUARTER

Industrial Structures (C.E. 23)	3
Advanced Structural Design (C.E. 21)	3 (3)
Sewerage (C.E. 40)	3
Water Power Engineering (C.E. 39)	2
Engineering Contracts (C.E. 44)	3
Higher Structures (C.E. 26) ..	4 (2)
	<hr/>
	18

SPRING QUARTER

C.E. Seminar (C.E. 46).....	1
Irrigation and Drainage Engineering (C.E. 42).....	3
Engineering Administration (C.E. 45)	3
Municipal and Sanitary Design (C.E. 41).....	4 (3)
Elements of Contracting (C.E. 43)	5
	<hr/>
	16

ELECTRICAL ENGINEERING

FRESHMAN YEAR*

AUTUMN QUARTER

Algebra (Eng. Math. 1a)†....	3
Trigonometry (Eng. Math. 2a)	2
Mechanical Drawing (Draw. 1)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 1).....	3
Physical Education	1 (1)
	<hr/> 17

WINTER QUARTER

Algebra (Eng. Math. 1b)....	3
Trigonometry (Eng. Math. 2b)	2
Mechanical Drawing (Draw. 2)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 2).....	3
Physical Education	1 (1)
	<hr/> 17

SPRING QUARTER

Analytic Geometry (Eng. Math. 3)	5
Descriptive Geometry (Draw. 3)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 3).....	3
Engineering Literature (English 4)	2
Physical Education	1 (1)
	<hr/> 19

SOPHOMORE YEAR

AUTUMN QUARTER

Calculus (Eng. Math. 4a)†... 4	
Physics (Eng. Phys. 50 and 51)	5 (1)
Engineering Materials (E.E. 17)	3
Machine Shop (Shop 9).....	2 (2)
Forging (Shop 4).....	2 (2)
Electric and Magnetic Circuits (E.E. 11).....	2
	<hr/> 18

WINTER QUARTER

Calculus (Eng. Math. 4b).... 4	
Physics (Eng. Phys. 50 and 51)	5 (1)
Kinematics (M.E. 1).....	3
Wood Working (Shop 1).....	2 (2)
Foundry (Shop 6).....	2 (2)
Electric and Magnetic Circuits (E.E. 12).....	2
	<hr/> 18

SPRING QUARTER

Calculus (Eng. Math. 4c).... 4	
Physics (Eng. Phys. 50 and 51)	5 (1)
Analytical Mechanics—Statics (Eng. Phys. 52)....	3
Machine Drawing (M.E. 40)	5 (3)
Electric and Magnetic Circuits (E.E. 30).....	1 (1)
	<hr/> 18

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JUNIOR YEAR

AUTUMN QUARTER

Electrical Machinery (E.E. 1)	3
Direct Current Laboratory (E.E. 31)	2 (2)
Electrical Measurements (Eng. Phys. 55)	3 (3)
Illumination and Photometry (E.E. 10)	3
Theory of Electricity and Magnetism (Eng. Phys. 54a)	2
Technical Writing (English 5)	2
Analytical Mechanics—Dy- namics (Eng. Phys. 53)....	3
	<hr/> 18

WINTER QUARTER

Electrical Machinery (E.E. 2)	3
M.E. Laboratory (M.E. 30)..	2 (2)
Photometry Laboratory (E.E. 32)	2 (2)
Hydraulics (C.E. 11)	3
Thermodynamics (M.E. 6)...	2
Theory of Electricity and Magnetism (Eng. Phys. 54b)	3
Steam Engines and Boilers (M.E. 5)	3
	<hr/> 18

SPRING QUARTER

Electrical Machinery (E.E. 3)	3
Direct Current Laboratory (E.E. 33)	2 (2)
Mechanics of Materials (C.E. 8)	5
Materials Testing Laboratory (C.E. 9)	2 (2)
Thermodynamics (M.E. 7)...	3
Machine Design (M.E. 44)...	3 (2)
	<hr/> 18

SENIOR YEAR

AUTUMN QUARTER

Theory of Alternating Cur- rents (E.E. 4)	3
Surveying (C.E. 4)	3 (2)
Electrical Railway Engineer- ing (E.E. 21)	2
Alternating Current Labora- tory (E.E. 34)	2 (2)
Telephone Engineering (E.E. 7)	3
Central Station Design (E.E. 40)	2 (1)
Organization and Manage- ment (E.E. 18)	3
	<hr/> 18

WINTER QUARTER

Theory of Alternating Currents (E.E. 5)	4
Building Construction (C.E. 22)	2
Engineering Contracts (E.E. 25)	3
Alternating Current Labora- tory (E.E. 35)	2 (2)
Transmission and Distribu- tion (E.E. 8)	2
Central Station Design (E.E. 41)	3 (3)
Electric Railway Engineer- ing (E.E. 22)	2
	<hr/> 18

SPRING QUARTER

Theory of Alternating Currents (E.E. 6)	3
Steam Engine Laboratory (M.E. 32)	2 (2)
E.E. Seminar (E.E. 16)	1
Experimental Electrical Engineering (E.E. 36)	3 (2)
Central Station Design (E.E. 42)	2 (2)
Electric Railway Engineer- ing (E.E. 23)	3
Transmission and Distribu- tion (E.E. 9)	2
	<hr/> 16

MECHANICAL ENGINEERING

FRESHMAN YEAR*

AUTUMN QUARTER

Algebra (Eng. Math. 1a)†....	3
Trigonometry (Eng. Math. 2a)	2
Mechanical Drawing (Draw. 1)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 1).....	3
Physical Education	1 (1)
	<hr/> 17

WINTER QUARTER

Algebra (Eng. Math. 1b)....	3
Trigonometry (Eng. Math. 2b)	2
Mechanical Drawing (Draw. 2)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 2).....	3
Physical Education	1 (1)
	<hr/> 17

SPRING QUARTER

Analytic Geometry (Eng. Math. 3)	5
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Descriptive Geometry (Draw. 3)	4 (3)
Rhetoric (English 3).....	3
Engineering Literature (English 4)	2
Physical Education	1 (1)
	<hr/> 19

SOPHOMORE YEAR

AUTUMN QUARTER

Calculus (Eng. Math. 4a)†..	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Kinematics (M.E. 1).....	3
Engineering Materials (M.E. 2)	4
Wood Working (Shop 1).....	2 (2)
	<hr/> 18

WINTER QUARTER

Calculus (Eng. Math. 4b)....	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Machin Drawing (M.E. 40)	5 (3)
Heat Treatment of Steel (M.E. 4)	3
Pattern Making (Shop 2)....	1 (1)
	<hr/> 18

SPRING QUARTER

Calculus (Eng. Math. 4c)....	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Technical Mechanics—Statics (C.E. 6).....	3
Forging (Shop 3).....	3 (2)
Foundry (Shop 5).....	3 (2)
	<hr/> 18

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† These references are to the description of courses. Figures in parentheses indicate the number of three-hour laboratory, drafting, or field periods.

JUNIOR YEAR

AUTUMN QUARTER

Mechanics of Materials (C.E. 8)	5
Materials Testing Laboratory (C.E. 9).....	2 (2)
Steam Engines and Boilers (M.E. 5)	3
Technical Mechanics— Dynamics (C.E. 7).....	3
Machine Design (M.E. 41)...	5 (3)
	<hr/> 18

WINTER QUARTER

Electrical Machinery (E.E. 13)	3
Technical Writing (English 5)	2
Valve Gears (M.E. 15).....	2
Thermodynamics (M.E. 8)...	4
Machine Design (M.E. 42)...	4 (3)
Machine Shop (Shop 7).....	3 (2)
	<hr/> 18

SPRING QUARTER

Electrical Machinery (E.E. 14)	4
Hydraulics (C.E. 11).....	3
E.E. Laboratory (E.E. 37)	1 (1)
Thermodynamics (M.E. 9)...	3
Mechanics of Machinery (M.E. 23)	3
Machine Shop (Shop 8).....	2 (2)
M.E. Laboratory (M.E. 30)...	2 (2)
	<hr/> 18

SENIOR YEAR

AUTUMN QUARTER

Building Construction (C.E. 22)	2
Steam Engine and Boiler Design (M.E. 45).....	3 (2)
Automobiles and Gas Engines (M.E. 12).....	4
Compressed Air (M.E. 18)...	2
Principles of Aviation (M.E. 16)	2
Works Management (M.E. 14)	3
Steam Engine Laboratory (M.E. 31)	2 (2)
	<hr/> 18

WINTER QUARTER

Engineering Contracts (M.E. 27)	3
Refrigeration (M.E. 19).....	3
Steam Engine Laboratory (M.E. 33)	3 (3)
Steam Turbines (M.E. 17)...	2
Steam Engine and Boiler Design (M.E. 46).....	3 (2)
M.E. Seminar (M.E. 21).....	1
Locomotives and Air Brakes (M.E. 11)	3
	<hr/> 18

SPRING QUARTER

Surveying (C.E. 4).....	3 (2)
Power Plant Design (M.E. 47)	5 (3)
Heating and Ventilation (M.E. 10)	4 (1)
Railway Operation and Signals (M.E. 20).....	2
M.E. Seminar (M.E. 22).....	2
	<hr/> 16

CHEMICAL ENGINEERING

FRESHMAN YEAR*

AUTUMN QUARTER

Algebra (Eng. Math. 1a)†...	3
Trigonometry (Eng. Math. 2a)	2
Mechanical Drawing (Draw, 1)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 1).....	3
Physical Education	1 (1)
	<hr/>
	17

WINTER QUARTER

Algebra (Eng. Math. 1b)....	3
Trigonometry (Eng. Math. 2b)	2
Mechanical Drawing (Draw, 2)	4 (3)
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Rhetoric (English 2).....	3
Physical Education	1 (1)
	<hr/>
	17

SPRING QUARTER

Analytic Geometry (Eng. Math. 3)	5
General Chemistry (Eng. Chem. 1 and 2).....	4 (1)
Descriptive Geometry (Draw, 3)	4 (3)
Rhetoric (English 3).....	3
Engineering Literature (English 4)	2
Physical Education	1 (1)
	<hr/>
	19

SOPHOMORE YEAR

AUTUMN QUARTER

Calculus (Eng. Math. 4a)†...	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Engineering Materials (M.E. 3)	2
Qualitative Analysis (Eng. Chem. 3)	7 (4)
	<hr/>
	18

WINTER QUARTER

Calculus (Eng. Math. 4b)....	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Kinematics (M.E. 1).....	3
Quantitative Analysis (Eng. Chem. 4)	6 (4)
	<hr/>
	18

SPRING QUARTER

Calculus (Eng. Math. 4c)....	4
Physics (Eng. Phys. 50 and 51)	5 (1)
Technical Mechanics—Statics (C.E. 6).....	3
Quantitative Analysis (Eng. Chem. 4)	6 (4)
	<hr/>
	18

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† These references are to the description of courses. Figures in parentheses indicate the number of three-hour laboratory, drafting, or field periods.

JUNIOR YEAR

AUTUMN QUARTER

Steam Engines and Boilers (M.E. 5)	3
Technical Mechanics— Dynamics (C.E. 7).....	3
Technical Writing (English 5)	2
M.E. Laboratory (M.E. 30)...	2 (2)
Machine Drawing (M.E. 40)...	5 (3)
Organic Chemistry Lectures (Eng. Chem. 5).....	3
	<hr/> 18

WINTER QUARTER

Mechanics of Materials (C.E. 8)	5
Materials Testing Labora- tory (C.E. 9).....	2 (2)
Thermodynamics (M.E. 6)...	2
Electrical Machinery (E.E. 13)	3
Machine Design (M.E. 44)...	3 (2)
Organic Chemistry Lectures (Eng. Chem. 5).....	3
	<hr/> 18

SPRING QUARTER

Electrical Machinery (E.E. 14)	4
E.E. Laboratory (E.E. 37)...	1 (1)
Thermodynamics (M.E. 7)...	3
Heat Treatment of Steel (M.E. 4)	3
Organic Chemistry Lectures (Eng. Chem. 5).....	3
Organic Preparations (Eng. Chem. 6)	3 (3)
General Shop Work (Shop 10)	1 (1)
	<hr/> 18

SENIOR YEAR

AUTUMN QUARTER

Hydraulics (C.E. 11).....	3
Works Management (M.E. 14)	3
Surveying (C.E. 4).....	3 (2)
Steam Engine Laboratory (M.E. 31)	2 (2)
Physical Chemistry Lectures (Eng. Chem. 7).....	3
Ch.E. Seminar (M.E. 25)....	2
Building Construction (C.E. 22)	2
	<hr/> 18

WINTER QUARTER

Engineering Contracts (M.E. 27)	3
Physical Chemistry Lectures (Eng. Chem. 7).....	3
Physical Chemistry Lab- oratory (Eng. Chem. 8)....	2 (2)
Chemical Engineering Design (M.E. 48).....	4 (3)
Chemical Engineering Materials (M.E. 26).....	3
Refrigeration (M.E. 19)....	3
	<hr/> 18

SPRING QUARTER

Power Plant Efficiency (M.E. 24)	2
Physical Chemistry Lectures (Eng. Chem. 7).....	3
Physical Chemistry Labora- tory (Eng. Chem. 8).....	2 (2)
Industrial Chemistry (Eng. Chem. 11)	4
Technical Analysis (Eng. Chem. 10)	3 (3)
Steam Turbines (M.E. 17)...	2
	<hr/> 16

DESCRIPTION OF COURSES

CIVIL ENGINEERING

PROFESSOR HUNTINGTON, ASSOCIATE PROFESSORS CRAWFORD AND MARCELLUS, AND MR. DUNGAN, MR. CANFIELD, MR. WITHAM, AND MR. HARVEY.

1. PLANE SURVEYING. Autumn quarter. One hour lecture, nine hours in field. 4 h.

Instruction is given in the theory of surveying and in the theory, use, and adjustment of the compass, level, transit, plane table, and sextant. The field work includes pacing and chaining surveys; compass and transit traverses; measurement of angles by repetition; differential, profile, and contour leveling; traverses with the plane table, etc. Maps and reports are required. Considerable time is given to a study of U. S. Land Survey methods, and to court decisions relating to relocation of corners, lines, and boundaries.

Textbook: Pence and Ketchum's Surveying Manual.

Prerequisites: Eng. Math. 1 and 2, and Draw. 1.

2. SURVEYING AND MAPPING. Winter quarter. One hour lecture, six hours in drawing room. 3 h.

This course covers the calculations of surveys and the preparation of maps and profiles. Calculations are made for the triangulation system of a topographic survey. Some time is given to measurements of angles by repetition and to measurements of base lines and to precise leveling.

Textbooks: Pence and Ketchum's Surveying Manual; Johnson and Smith's Theory and Practice of Surveying, and notes by the Department.

Prerequisite: C.E. 1.

3. HIGHER SURVEYING. Spring quarter. One hour lecture, nine hours in field. 4 h.

In this course the different methods of making topographic surveys are discussed. A complete topographic survey based

on a carefully designed triangulation system is made. The calculations are made and a map is drawn.

Textbooks: Pence and Ketchum's Surveying Manual; Johnson and Smith's Theory and Practice of Surveying, and notes by the Department.

Prerequisite: C.E. 2.

4. SURVEYING. Autumn or spring quarter. One hour lecture, six hours in field. 3 h.

A brief course in surveying and in the theory and use of the level, transit, and other instruments, for electrical, mechanical, and chemical engineering students. The work covers problems in pacing, chaining, compass and transit surveys, profile and contour leveling, laying out buildings, etc.

Textbook: Pence and Ketchum's Surveying Manual.

Prerequisites: Eng., Math. 1 and 2, and Draw. 1.

5. RAILROAD CURVES. Winter quarter. One hour lecture, three hours in field. 2 h.

A study is made of simple, compound, reversed, parabolic curves, and the transition spiral. Instruction consists of recitations, problems, and field locations.

Textbook: Allen's Railroad Curves and Earthwork.

Prerequisite: C.E. 1 and to be taken with C.E. 2.

6. TECHNICAL MECHANICS—STATICS. Spring quarter. 3 h.

The mechanics of engineering rather than of astronomy and physics is here considered. Particular attention is given to developing and fixing fundamental concepts of equilibrium and motion as applied to engineering problems. Both algebraic and graphic methods of the calculation of problems are considered. This course is followed by C.E. 7.

Textbook: Poorman's Applied Mechanics.

Prerequisites: Eng. Math. 4a and 4b, and to be taken with Eng. Math. 4c.

7. TECHNICAL MECHANICS—DYNAMICS. Autumn quarter. 3 h.

A continuation of C.E. 6.

Textbook: Poorman's Applied Mechanics.

Prerequisites: Eng. Math. 4 and C.E. 6.

8. MECHANICS OF MATERIALS. Any quarter. 5 h.

This course covers the elasticity of materials; stress and strain; working stresses; resistance of pipes and riveted joints; bending moment; resisting moment; shear; elastic curve of beams; torsion; internal stress; fatigue of metals; etc.

Textbook: Boyd's Strength of Materials.

Prerequisites: Eng. Math. 4, and Eng. Phys. 52 or C.E. 6.

9. MATERIALS TESTING LABORATORY. Any quarter. Six hours in laboratory. 2 h.

An experimental study of the physical properties of steel, wrought and cast iron, timber, stone, brick, cement, and concrete, including the testing of concrete aggregates. Standard methods of testing are emphasized.

Prerequisite: C.E. 8, or to be taken with C.E. 8.

10. ADVANCED MECHANICS OF MATERIALS. Elective. 3 h.

This course covers an extended discussion of combined stresses, resilience, stresses in beams, deflection of beams, torsion, pipes and cylinders, curved bars, and arches.

Textbook: Morley's Strength of Materials.

Prerequisites: C.E. 8 and 17.

11. HYDRAULICS. Any quarter. 3 h.

This course covers the weight and pressure of water; head; center of pressure, velocity and discharge through orifices, tubes, nozzles, pipes, hose, weirs, conduits, canals, rivers; meters and measurements; motors, turbines, and water wheels.

Textbook: Daugherty's Hydraulics.

Prerequisites: Eng. Math. 4 and Eng. Phys. 52 and 53, or C.E. 6 and 7.

12. HYDRAULICS LABORATORY. Spring quarter. Three hours in laboratory. 1 h.

Experiments on flow of water over weirs, through orifices, in open channels and pipes; tests of pumps, reaction and turbine water wheels, etc.; determination of coefficients of friction in hose and pipes.

Prerequisite: C.E. 7 and to be taken with C.E. 11.

13. **ADVANCED HYDRAULICS.** 3 h. Elective.

An extended study of flow in pipes, nozzles, conduits, canals and rivers; of velocity and discharge; water hammer; dynamic action of streams; turbine and pump theory; hydraulic rams, lifts, hoists, and meters.

Textbook: Gibson's *Hydraulics and Its Application*.

Prerequisite: C.E. 11.

14. **ENGINEERING MATERIALS.** Autumn quarter. 3 h.

A study is made of the properties and requirements for materials used in engineering construction, the effect of different methods of manufacture upon the quality of the material, and specifications and standard tests for materials.

Textbook: Mill's *Materials of Engineering*, and notes.

Prerequisite: Eng. Chem. 1.

15. **TIMBER STRUCTURES.** Elective. One hour lecture, three hours in drawing room. 2 h.

A study of the joints and fastenings used in timber framing, and the details of timber structures. Design and detail drawings of timber trusses, trestles, and timber details.

Textbook: Jacoby's *Structural Details*.

Prerequisites: Draw. 1, Eng. Math. 1 and 2, and C.E. 14.

16. **STRUCTURAL DRAFTING.** Winter quarter. Six hours in drawing room. 2 h.

Preparation of detail drawings of steel beams, columns, roof trusses, and bridges.

Textbooks: Ketchum's *Structural Engineers' Handbook*; and Bishop's *Structural Drafting and Design of Details*.

Prerequisite: Sophomore standing.

17. **FRAMED STRUCTURES.** Winter quarter. Three hours lecture, six hours in drawing room. 5 h.

This course includes the calculation of stresses in beams and statically determinate framed structures, such as roof and bridge trusses, by algebraic and graphic methods. The stresses in bridges due to uniform loads and wheel concentrations are studied.

Textbooks: Ketchum's Design of Highway Bridges; and Johnson, Bryan, and Turneaure's Modern Framed Structures, Part I.

Prerequisites: C.E. 6, 7, and 8.

18. STRUCTURAL ANALYSIS. Spring quarter. One hour lecture, six hours in drawing room. 3 h.

This course is a continuation of Framed Structures, and is preliminary to the course in Higher Structures. A study is made of the stresses and deflections in statically determinate and simple statically indeterminate structures, making use of algebraic methods, the Wilott diagram and influence lines.

Textbook: Johnson, Bryan, and Turneaure's Modern Framed Structures, Part I.

Prerequisite: C.E. 17.

19. BRIDGE CONSTRUCTION. Autumn quarter. 3 h.

A study of the types and details of highway and railway bridges of steel, concrete, and timber.

Textbooks: Ketchum's Design of Highway Bridges; and Johnson, Bryan, and Turneaure's Modern Framed Structures, Part III.

Prerequisite: C.E. 18.

20. STRUCTURAL DESIGN. Autumn quarter. Fifteen hours in drawing room. 5 h.

This course covers the detail design of retaining walls, concrete arches, masonry, dams, mill buildings, and bridges.

Prerequisites: C.E. 17 and 29.

21. ADVANCED STRUCTURAL DESIGN. Winter quarter. Nine hours in drawing room. 3 h.

A continuation of Structural Design.

Textbooks: Ketchum's Structural Engineers' Handbook; and Johnson, Bryan, and Turneaure's Modern Framed Structures, Part III.

Prerequisite: C.E. 20.

22. BUILDING CONSTRUCTION. Any quarter. 2 h.

A study of the types and details of construction of buildings, and including the preparation of plans.

Prerequisite: Sophomore standing.

23. INDUSTRIAL STRUCTURES. Winter quarter. 3 h.

A study of buildings of steel, concrete, and slow burning construction and of elevated tanks, chimneys, grain elevators and bins.

Textbooks: Ketchum's Structural Engineers' Handbook; and Ketchum's Walls, Bins and Grain Elevators; Hool and Johnson's Concrete Engineers' Handbook, and references.

Prerequisites: C.E. 17 and 29.

24. OFFICE BUILDINGS. Two hours lecture, three hours in drawing room. 3 h. Elective.

The design and details of office buildings of steel and of reinforced concrete.

Prerequisites: C.E. 22 and 23.

25. MINE AND MILL STRUCTURES. Two hours lecture, three hours in drawing room. 3 h. Elective.

A study of the design of head frames, coal tipples, coal washers and breakers, concentrating plants, and other mine structures.

Textbook: Ketchum's Design of Mine Structures.

Prerequisites: C.E. 20 and 23.

26. HIGHER STRUCTURES. Winter quarter. Two hours lecture, six hours in drawing room. 4 h.

This course includes the calculation of stresses in statically indeterminate structures such as continuous beams, swing bridges, arch bridges, suspension bridges, transverse bents, head frames, office building frames, rigid frames, etc. Extensive use is made of influence lines and of the method of area moments.

References and notes.

Prerequisite: C.E. 18.

29. THEORY OF REINFORCED CONCRETE. Spring quarter. 3 h.

A study is made of the theory of reinforced concrete.

Textbook: Hool and Johnson's Reinforced Concrete Handbook.

Prerequisite: C.E. 8.

30. REINFORCED CONCRETE DESIGN. One hour lecture, three hours in drawing room. 2 h. Elective.

This course includes the preparation of designs and detailed drawings of reinforced concrete bridges and buildings.

Textbook: Hool and Johnson's Reinforced Concrete Handbook.

Prerequisite: C.E. 29.

31. MASONRY CONSTRUCTION. Autumn quarter. 3 h.

A study of cements, concrete, retaining walls, dams, arches, and other masonry and reinforced concrete structures. A complete investigation of a reinforced concrete arch is made, using the elastic theory.

Textbooks: Hool and Johnson's Concrete Engineers' Handbook; Baker's Masonry Construction; and Ketchum's Design of Walls, Bins and Grain Elevators.

Prerequisites: C.E. 8 and 14.

32. FOUNDATIONS. Autumn quarter. 2 h.

A study of foundations for bridges and buildings.

Textbook: Jacoby and Davis' Foundations for Bridges and Buildings.

Prerequisites: C.E. 8 and 29.

33. ROADS AND PAVEMENTS. Winter quarter. Three hours lecture, three hours in laboratory. 4 h.

A detailed study of country roads and city pavements, together with a study of road building materials, testing, surveys, the design of streets, the construction of modern pavements, road economics, etc.

Prerequisite: C.E. 14.

34. RAILROAD ENGINEERING. Autumn quarter. Three hours lecture, six hours in field and drawing room. 5 h.

Instruction in railroad engineering consists of field practice, office and classroom work. Field practice consists of the

complete location of a line of railroad. In the office the quantities are calculated, and profiles and a complete map are drawn. In the classroom a detailed study is made of the principles of economic location and construction, maintenance of way and railway structures and appliances.

Textbooks: Allen's Railroad Curves and Earthwork; Williams' Design of Railroad Location, and references.

Prerequisites: C.E. 1, 2, 3, and 5.

35. RAILROAD MAINTENANCE. Winter quarter. 2 h.

Rail and tie renewals, surfacing, manufacture of rails, rail failures, ballast, sidings, crossings, and track accessories are studied in detail. Some time is given to organization of maintenance forces.

Textbook: Willard's Maintenance of Way and Structures.

Prerequisite: C.E. 34.

36. ENGINEERING ECONOMICS. Autumn quarter. 2 h.

A course covering the principles of economics as applied to engineering structures. Some time is given to the valuation of public utilities.

Textbooks: Fish's Engineering Economics; Williams' Design of Railroad Location, and references.

Prerequisite: Senior standing in civil engineering.

37. BACTERIOLOGY. Spring quarter. 3 h.

Lectures and laboratory demonstration.

This course covers a study of bacteriological methods and their application in water analysis and sewerage.

Textbook: Morrey's Fundamentals of Bacteriology.

Prerequisite: Eng. Chem. 1.

38. WATER SUPPLY. Autumn quarter. 3 h.

This course covers the principal features of water works design and construction, including quantity and quality of potable water; choice of supply; the designing of distribution systems, reservoirs, dams, and elevated tanks.

Textbook: Turneure and Russell's Public Water Supplies.

Prerequisites: C.E. 11 and 37.

39. WATER POWER ENGINEERING. Winter quarter. 2 h.

Stream flow including hydrographs of actual streams; impulse wheels and reaction turbines and the conditions governing their selection; storage and the relation of the reservoir to the power station; economics of power development, its sale and distribution.

Textbook: Mead's Water Power Engineering.

Prerequisites: C.E. 7 and 11.

40. SEWERAGE. Winter quarter. 3 h.

This course covers the design and construction of sewerage systems, including separate and combined systems; surveys and plans, determination of size and capacity; construction; and modern methods of sewerage disposal.

Textbook: Powell's Sewerage.

Prerequisite: C.E. 11.

41. MUNICIPAL AND SANITARY DESIGN. Spring quarter. One hour lecture, nine hours in drawing room. 4 h.

This course consists of the laying out of an industrial town including the street improvements, water supply, storm and sanitary sewers, together with the preparation of the necessary plans, profiles, working drawings, specifications, and estimates of cost.

Prerequisites: C.E. 1, 2, 3, 33, 38, and 40.

42. IRRIGATION AND DRAINAGE ENGINEERING. Spring quarter. 3 h.

In this course a study is made of the fundamental principles of irrigation engineering, including the design and construction of reservoirs, dams, flumes, canals, and other irrigation works.

Textbook: Davis and Wilson's Irrigation Engineering.

Prerequisites: C.E. 1, 2, 3, and 11.

43. ELEMENTS OF CONTRACTING. Spring quarter. 5 h.

This course includes a study of contractors' organizations, cost estimating, cost keeping, forms of contract, purchasing of material, hiring of labor, and various other phases of the business of contracting.

Prerequisite: Senior standing in civil engineering.

44. **ENGINEERING CONTRACTS.** Winter quarter. 3 h. For senior students only.

The law of engineering contracts and specifications. Emphasis is placed on the importance of the clear and definite writing of contracts and specifications, and considerable practice is given the student in the preparation of contracts and specifications.

Textbook: Tucker's Contracts in Engineering.

Prerequisite: Senior standing in civil engineering.

45. **ENGINEERING ADMINISTRATION.** Spring quarter. 3 h.

A study of the economics of engineering construction, the details of engineering organization for construction and operation, and business organizations. Some time is given to a study of the labor problem, including welfare, sanitation, and safety.

Prerequisite: Senior standing in civil engineering.

46. **C.E. SEMINAR.** Spring quarter. 1 h. For senior students only.

A study is made of technical periodicals and literature.

Prerequisite: Senior standing in civil engineering.

47. **CIVIL ENGINEERING LECTURES.** Autumn quarter. 2 h.

A series of lectures explaining the various branches of civil engineering, and considering the history and modern practice of each branch, the chief objects being to arouse the student's interest in his work and give him a general idea of the profession.

Prerequisite: Sophomore standing.

ELECTRICAL ENGINEERING

PROFESSOR EVANS, ASSOCIATE PROFESSOR DUVALL, ASSISTANT PROFESSOR COOVER, AND MR. MCCORMICK, MR. LINDSAY, AND MR. EASTOM.

1. **ELECTRICAL MACHINERY.** Autumn quarter. 3 h.

A study of the electric and magnetic circuits of direct current machines and apparatus, with especial emphasis on the mathematical and graphical development of the principles involved in their theory and operation. The work is supplemented by practical problems throughout the course.

Textbook: Franklin and Estey's Elements of Electrical Engineering, Vols. I and II.

Prerequisite: E.E. 30, and to be taken with Eng. Phys. 53, 54, and 55.

2. ELECTRICAL MACHINERY. Winter quarter. 3 h.

A continuation of the study of direct current machines and the study of simple alternating current circuits and the operating characteristics of alternating current machinery. Methods of measurement of alternating current are also taken up.

Prerequisite: E.E. 1.

3. ELECTRICAL MACHINERY. Spring quarter. 3 h.

A continuation of the study of alternating current machinery.

Prerequisite: E.E. 2, and to be taken with E.E. 33.

4. THEORY OF ALTERNATING CURRENTS. Autumn quarter. 3 h.

A study of the theory, regulation, and operation of the various types of alternating current apparatus—single-phase and polyphase generators, synchronous and induction motors, rotary converters, transformers, etc.; the solution of alternating current circuits; the use of vectors and the complex quantity.

Textbook: Lawrence's Principles of Alternating Current Machinery, and references.

Prerequisites: E.E. 3 and Eng. Phys. 53.

5. THEORY OF ALTERNATING CURRENTS. Winter quarter. 4 h.

A continuation of E.E. 4.

Prerequisite: E.E. 4.

6. THEORY OF ALTERNATING CURRENTS. Spring quarter. 3 h.

A continuation of E.E. 5.

Prerequisite: E.E. 5.

7. TELEPHONE ENGINEERING. Autumn quarter. 3 h.

A study of the electrical principles underlying the transmission of speech, the construction and operation of different types of subscriber's station and central office equipment, under-

ground and aerial lines, automatic and wireless systems, telephone and telegraph engineering problems.

Textbook: McMeen and Miller's Telephony, notes and references.

Prerequisites: E.E. 3 and E.E. 33.

8. TRANSMISSION AND DISTRIBUTION. Winter quarter. 2 h.

A study of the principles of direct and alternating current distribution for light and power purposes, methods of installation and regulation, illustrated by practical application to specific problems, alternating current problems in long distance transmission.

Textbook: American Handbook, notes, and references.

Prerequisites: E.E. 4 and E.E. 34.

9. TRANSMISSION AND DISTRIBUTION. Spring quarter. 2 h.

A continuation of E.E. 8.

Prerequisite: E.E. 8.

10. ILLUMINATION AND PHOTOMETRY. Autumn quarter. 3 h.

A study of illuminants with respect to their adaptation to interior and exterior lighting, and methods of determining the amount, character, and distribution of their light flux, together with the engineering and economic principles of illumination.

Textbook: Ferguson's Illumination and Photometry, notes and references.

Prerequisite: To be taken with E.E. 1.

11. ELECTRIC AND MAGNETIC CIRCUITS. Autumn quarter. 2 h.

This course is a very elementary course offered to beginning students to introduce fundamental laws and principles as early as possible. It is largely a problem course familiarizing the student with the laws and principles by drill in concrete examples.

Textbook: Dawe's Electrical Engineering, notes and references.

Prerequisite: To be taken with Eng. Phys. 50 and 51, and Eng. Math. 4a.

12. ELECTRIC AND MAGNETIC CIRCUITS. Winter quarter. 2 h.
A continuation of E.E. 11.

Prerequisite: E.E. 11, and to be taken with Eng. Phys. 50 and 51, and Eng. Math. 4b.

13. ELECTRICAL MACHINERY. Winter quarter. 3 h.

A course arranged for students who are not specializing in electrical engineering, covering the laws and properties of electric and magnetic circuits; the theory, construction, and operation of direct current machines and apparatus; the solution of practical problems.

Textbook: Gray's Principles and Practice of Electrical Engineering.

Prerequisites: C.E. 7 and Eng. Math. 3.

14. ELECTRICAL MACHINERY. Spring quarter. 4 h.

A continuation of Course 13, including also a study of the simpler principles of alternating currents and alternating current machinery.

Prerequisite: E.E. 13.

15. PRIMARY AND SECONDARY BATTERIES. 1 h. Elective.

A course devoted primarily to the study of storage batteries, their use, maintenance, and care, and their application to central station work and power distribution.

Prerequisite: E.E. 2 or 13.

16. E.E. SEMINAR. Spring quarter. 1 h. For senior students only.

A course in the history of electrical engineering and the biography of prominent engineers; also reviews of current electrical literature.

17. ENGINEERING MATERIALS. Autumn quarter. 3 h.

A study is made of the properties of materials used in engineering construction, the effects of different methods of manufacture upon the quality of material, and specifications and standard tests for materials.

Textbook: Mill's Materials of Engineering, and notes.

Prerequisite: Eng. Math. 3, and to be taken with Eng. Phys. 50 and 51.

18. ORGANIZATION AND MANAGEMENT. Autumn quarter. 3 h.

Lectures and assigned reading.

A course dealing with engineering as a business problem, showing the importance of the dollar as a factor in engineering decisions. Fundamental principles studied as to costs, handling of labor and materials, producing a working organization, and the engineer in the appraisal of public utilities for rate making, taxation, issue of securities and sale.

Notes and references.

Prerequisite: E.E. 3, and to be taken with E.E. 4.

19. TELEPHONE ENGINEERING. (ADVANCED). 3 h. Elective.

A course covering the various types of telephone lines and switchboards, methods of testing lines and cables, traffic problems, economics of telephone engineering.

Prerequisite: E.E. 7.

20. ILLUMINATION AND PHOTOMETRY. (ADVANCED). 3 h. Elective.

The calculation of light flux and illumination; the design and comparison of illuminating systems; practical tests of existing installations.

Prerequisite: E.E. 10.

21. ELECTRIC RAILWAY ENGINEERING. Autumn quarter. 2 h.

A detailed study of the principles of design and installation of electric railway systems, storage battery installations, distribution systems; surface, overhead and underground railways; principles and operation of various systems of train control, manual and automatic block signals and interlocking systems; both direct and alternating current systems are covered. Some time is also given to the electrification of railroad terminals.

Textbook: Harding's Electric Railway Engineering, notes and references.

Prerequisite: E.E. 3, and to be taken with E.E. 4.

22. ELECTRIC RAILWAY ENGINEERING. Winter quarter. 2 h.

A continuation of E.E. 21.

Prerequisite: E.E. 21.

23. ELECTRIC RAILWAY ENGINEERING. Spring quarter. 3 h.

A continuation of E.E. 22.

Prerequisite: E.E. 22.

24. RAILWAY SIGNALING. 2 h. Elective.

A course covering the development and present-day practice in signaling, dispatching, and interlocking with some special applications.

Prerequisites: E.E. 21 and 22, or may be taken with E.E. 22.

25. ENGINEERING CONTRACTS. Winter quarter. 3 h. For senior students only.

The law of engineering contracts and specifications, with practice in the writing of contracts and in the preparation of engineering specifications.

Textbook: Tucker's Contracts in Engineering.

30. ELECTRIC AND MAGNETIC CIRCUITS. Spring quarter. Three hours in laboratory. 1 h.

A study of the circuits of various types of apparatus and laboratory installations. This course is to prepare the student for the laboratory work which follows.

Prerequisites: E.E. 11 and 12.

31. DIRECT CURRENT LABORATORY. Autumn quarter. Six hours in laboratory. 2 h.

Experimental study of the characteristics of direct current generators and motors, methods of testing, commercial tests, etc.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisite: E.E. 30, and to be taken with E.E. 1 and Eng. Phys. 54 and 55.

32. PHOTOMETRY LABORATORY. Winter quarter. Six hours in laboratory. 2 h.

A laboratory course in the determination of the strength and distribution of light of various types of illuminants, prac-

tice in the use of different photometers, measurement and representation of illumination.

Prerequisites: E.E. 10 and 31.

33. DIRECT CURRENT LABORATORY. Spring quarter. Six hours in laboratory. 2 h.

Continuation of E.E. 31.

Prerequisite: E.E. 31, and to be taken with E.E. 3.

34. ALTERNATING CURRENT LABORATORY. Autumn quarter. Six hours in laboratory. 2 h.

Experimental study of the properties and performance of alternating current generators, motors, transformers, rotary converters; methods of alternating current measurements and commercial tests, including complete operation tests.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisites: E.E. 3 and 33, and to be taken with E.E. 4.

35. ALTERNATING CURRENT LABORATORY. Winter quarter. Six hours in laboratory. 2 h.

Continuation of E.E. 34 with some high tension tests.

Prerequisite: E.E. 34, and to be taken with E.E. 5 and 8.

36. EXPERIMENTAL ELECTRICAL ENGINEERING. Spring quarter. One hour lecture, six hours in laboratory. 3 h.

Special tests in line with current electrical engineering problems such as insulation tests and high tension phenomena. Some time is also given to the work of the Standardization Laboratory and such special pieces of apparatus as the oscillograph and the artificial transmission line. Original effort on the part of the student is encouraged in the preparation of problems, manner of handling experiments, and in the interpretation of results.

Prerequisites: E.E. 5, 8, and 35.

37. E.E. LABORATORY. Spring quarter. Three hours in laboratory. 1 h.

A laboratory course in the testing and operation of direct and alternating current machinery, arranged for students not specializing in electrical engineering.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisite: E.E. 13, and to be taken with E.E. 14.

40. CENTRAL STATION DESIGN. Autumn quarter. One hour lecture, three hours in drawing room. 2 h.

Lectures, problems, drawings.

Principles of design of direct and alternating current apparatus; the location and design of electric power plants and substations for public service. Complete drawings and details of cost and construction required.

Textbook: Still's Principles of Electrical Design, notes and references.

Prerequisite: M.E. 7, and to be taken with E.E. 4 and 34.

41. CENTRAL STATION DESIGN. Winter quarter. Nine hours in drawing room. 3 h.

Continuation of E.E. 40.

Prerequisite: E.E. 40 and to be taken with E.E. 8 and 35.

42. CENTRAL STATION DESIGN. Spring quarter. Six hours in drawing room. 2 h

Continuation of E.E. 41.

Prerequisite: E.E. 41.

43. CENTRAL STATION DESIGN (ADVANCED). Six hours in drawing room. 2 h. Elective.

A continuation of E.E. 42, taking up the construction and operation of hydro-electric and gas electric power plants. Complete drawings and details of costs and construction required.

Prerequisite: E.E. 42.

MECHANICAL ENGINEERING

PROFESSOR HUNTER, ASSOCIATE PROFESSORS BAUER AND SIMMERING,
ASSISTANT PROFESSOR MALLORY, AND MR. BEATTIE, MR.
ASHCRAFT, MR. WHITE AND MR. VICKLUND.

1. KINEMATICS. Any quarter. 3 h.

A study of the relative motions of machine parts, instant centers, straight line motion, cams, gearing, belting, and intermittent motions.

Textbook: Keown's Mechanism.

Prerequisites: Eng. Math. 1 and 2, and to be taken with Eng. Phys. 50 and 51.

2. **ENGINEERING MATERIALS.** Autumn quarter. 4 h.

This course is a study of the manufacture, properties, and selection of the materials used in engineering construction.

Textbook: Mill's Materials of Construction.

Prerequisite: Eng. Math. 3, and to be taken with Eng. Phys. 50 and 51.

3. **ENGINEERING MATERIALS.** Autumn quarter. 2 h.

A course similar to M.E. 2, but covering the subject more briefly.

Textbook: Moore's Materials of Engineering.

Prerequisite: Eng. Math. 3, and to be taken with Eng. Phys. 50 and 51.

4. **HEAT TREATMENT OF STEEL.** Winter or spring quarter. 3 h.

A study of the theory of hardening, tempering, annealing, toughening, case hardening, and the application of modern processes to the heat treatment of steel.

Textbook: Bullen's Steel and Its Heat Treatment.

Prerequisite: M.E. 2 or 3.

5. **STEAM ENGINES AND BOILERS.** Any quarter. 3 h.

This course includes an elementary study of thermodynamics, various types of steam boilers and engines, valve gears, and other power plant apparatus.

Textbook: Allen and Bursley's Heat Engines.

Prerequisites: Eng. Phys. 50 and 51.

6. **THERMODYNAMICS.** Winter quarter. 2 h.

The fundamental principles of thermodynamics are studied, including fundamental laws, laws of perfect gases, gas and vapor cycles, laws of vapors.

Textbook: Ennis' Applied Thermodynamics for Engineers.

Prerequisites: M.E. 5, Eng. Math. 4, and Eng. Phys. 50 and 51.

7. THERMODYNAMICS. Spring quarter. 3 h.

A continuation of M.E. 6, including the applications of the principles of thermodynamics to heat power engineering.

Textbook: Ennis' Applied Thermodynamics for Engineers

Prerequisite: M.E. 6.

8. THERMODYNAMICS. Winter quarter. 4 h.

This course is primarily for mechanical engineering students, and consists of a detailed study of the principles of thermodynamics and the practical applications to heat power engineering.

Textbook: Ennis' Applied Thermodynamics for Engineers.

Prerequisites: M.E. 5, Eng. Math. 4, and Eng. Phys. 50 and 51.

9. THERMODYNAMICS. Spring quarter. 3 h.

A continuation of M.E. 8.

Textbook: Ennis' Applied Thermodynamics for Engineers.

Prerequisite: M.E. 8.

10. HEATING AND VENTILATION. Spring quarter. Three hours lecture, three hours in laboratory. 4 h.

This course includes a study of the principles of heating and ventilation; also a study of the warm air, hot water, vapor and steam systems of heating, and mechanical systems of ventilation. Each student is required to design a heating and ventilating system for a given building, including complete specifications.

Textbook: Green's Heating and Ventilation of Buildings.

Prerequisites: M.E. 6 and 7, or M.E. 8 and 9.

11. LOCOMOTIVES AND AIR BRAKES. Winter quarter. 3 h.

The mechanics of the locomotive and problems relating to its operation; the engine and valve mechanism, train resistance, rail pressure, slipping, braking, hauling capacity, and steam consumption are each discussed with problems.

Textbooks: Henderson's Operations; McShane's Locomotive, Up to Date.

Prerequisites: M.E. 5 and 31.

12. AUTOMOBILES AND GAS ENGINES. Autumn quarter. 4 h.

This course covers the construction and operation of automobiles, gas engines, and producer gas plants.

Textbooks: Hobbs and Elliott's *The Gasoline Automobile*; Streeter's *Internal Combustion Engines*.

Prerequisites: M.E. 8 and 9.

14. WORKS MANAGEMENT. Autumn quarter. 3 h.

This course covers the economical designs and management of manufacturing property, the capitalization and organization of companies, the organization of labor, the calculation of cost, transmission of power, and sanitation.

Textbook: Ennis' *Works Management*.

Prerequisite: M. E. 5.

15. VALVE GEARS. Winter quarter. 2 h.

This course covers a theoretical and practical study of valve gears and link motions.

Textbook: Fessenden's *Valve Gears*.

Prerequisite: M.E. 5.

16. PRINCIPLES OF AVIATION. Autumn quarter. 2 h.

A study of the history, types, and nomenclature of the aeroplane, with particular reference to air resistance, principles of flight, materials of construction, rigging of aeroplanes, propellers and engines.

Textbook: Colvin's *Aircraft Mechanics Handbook*.

Prerequisites: M.E. 8 and 9, and to be taken with M.E. 12.

17. STEAM TURBINES. Winter or spring quarter. 2 h.

A study of the design and operation of steam turbines covering the comparison of types, flow of steam and its action on turbine vanes, design of vanes for maximum efficiency, theory of single and multi-stage turbines, turbine performance, and condensing apparatus.

Textbook: Moyer's *Steam Turbines*.

Prerequisites: M.E. 8 and 9, or M.E. 6 and 7.

18. COMPRESSED AIR. Autumn quarter. 2 h.

A study of air compressors, the transmission of compressed air and its application to pneumatic machinery.

Textbook: Peele's Compressed Air Plant.

Prerequisites: M.E. 8 and 9.

19. REFRIGERATION. Winter quarter. 3 h.

The principles of the compression and absorption systems of refrigeration, and the application of mechanical refrigeration to ice-making, cold storage, etc.

Textbook: MacIntire's Mechanical Refrigeration.

Prerequisites: M.E. 8 and 9.

20. RAILWAY OPERATION AND SIGNALS. Spring quarter. 2 h.

This course covers the operation of trains, handling of freight, and the construction, operation, and maintenance of railway signals.

Prerequisite: M.E. 11.

21. M. E. SEMINAR. Winter quarter. 1 h. For senior students only.

A study and discussion of technical periodicals and engineering literature.

22. M. E. SEMINAR. Spring quarter. 2 h.

A continuation of M.E. 21.

23. MECHANICS OF MACHINERY. Spring quarter. 3 h.

This course covers the application of the principles of theoretical and applied mechanics to such problems in machine design as transmission of power by belting, ropes, and chains, dynamometers, friction in machine parts, and useful applications of friction to clutches and brakes; efficiency of machines; high speed shafting and balancing.

Textbook: Leutwiler's Machine Design.

Prerequisite: M.E. 42.

24. POWER PLANT EFFICIENCY. Spring quarter. 2 h.

This course takes up the study of fuels, their selection and treatment, combustion, methods of firing, smoke prevention, heat absorption, boiler efficiency, boiler plant management and operation.

Prerequisites: M.E. 5 and 7.

25. CHEMICAL ENGINEERING SEMINAR. Autumn quarter. 2 h.

A course in engineering literature making use of the technical periodicals and articles published by chemists and engineers.

Prerequisite: M.E. 7.

26. CHEMICAL ENGINEERING MATERIALS. Winter quarter. 3 h.

This course is offered to chemical engineering students only after they have had the major part of their chemistry. It takes up the study of abrasion materials, polishing materials, oils and greases, paints, varnishes, leather, and other materials not given in Course 3.

Prerequisites: M.E. 24 and 25.

27. ENGINEERING CONTRACTS. Winter quarter. 3 h. For senior students only.

The law of engineering contracts and specifications, with practice in the writing of contracts and in the preparation of engineering specifications.

Textbook: Tucker's Contracts in Engineering.

30. M. E. LABORATORY. Any quarter. Six hours in laboratory, 2 h.

Experimental work in calibration of planimeters, water meters and gages; tests of dryness and quality of steam; tests of acidity, specific gravity, chilling and flashing points, and viscosity of oils and other lubricating materials; of impurities in boiler feed water; calometric analysis of solid, liquid, and gaseous fuels.

Textbook: Carpenter and Diederich's Experimental Engineering is used as a reference.

Prerequisite: M. E. 5, and to be taken with M.E. 6.

31. STEAM ENGINE LABORATORY. Autumn quarter. Six hours in laboratory. 2 h.

The laboratory work includes the calibration of steam engine indicators, a study of indicator cards, tests of simple engines, boiler tests, flue gas analysis, tests of injectors and boiler feed pumps, tests of internal combustion engines.

Prerequisites: M.E. 9 and 30.

32. STEAM ENGINE LABORATORY. Spring quarter. Six hours in the laboratory. 2 h.

Similar in character to M.E. 31, but more extensive, including a complete test of a steam-electric power plant.

Prerequisites: M.E. 7 and 30.

33. STEAM ENGINE LABORATORY. Winter quarter. Nine hours in the laboratory. 3 h.

Advanced work in engine testing, application of Clayton's analysis to steam engine performance, advanced work in boiler performance, tests of heating boilers and of power plants, tests on fans, blowers, compressors, and flow of air in pipes.

Prerequisite: M.E. 31.

40. MACHINE DRAWING. Any quarter. Two hours lecture, nine hours in drawing room. 5 h.

A study of machine elements, such as bolts, rivets, screws, keys, couplings, and gears. Problems are given requiring simple calculations for strength, including sketching and working drawings.

Textbook: Leutwiler's Machine Design, supplemented by notes.

Prerequisites: M.E. 1 and 2, or M.E. 3, or E.E. 17.

41. MACHINE DESIGN. Autumn quarter. Two hours lecture, nine hours in drawing room. 5 h.

This course covers advanced problems in kinematics, the design of belting, shafting, bearings, and pulleys, and the design of a toggle press, including a set of working drawings and bill of materials.

Textbook: Leutwiler's Machine Design.

Prerequisites: M.E. 2 and 40, C.E. 6, and to be taken with C.E. 8.

42. MACHINE DESIGN. Winter quarter. One hour lecture, nine hours in drawing room. 4 h.

A continuation of M.E. 41.

Prerequisite: M.E. 41.

44. MACHINE DESIGN. Winter or spring quarter. One hour lecture, six hours in drawing room. 3 h.

This course is similar to M.E. 41 and is arranged for students in electrical and chemical engineering.

Textbook: Leutwiler's Machine Design.

Prerequisites: E.E. 17, Eng. Phys. 52 and 53 or C.E. 7, and to be taken with C.E. 8, M.E. 1, 2, and 40.

45. STEAM ENGINE AND BOILER DESIGN. Autumn quarter. One hour lecture, six hours in drawing room. 3 h.

This course covers the design of simple and compound steam engines, and of fire and water tube boilers.

Prerequisites: M.E. 9, 15, and 42.

46. STEAM ENGINE AND BOILER DESIGN. Winter quarter. One hour lecture, six hours in drawing room. 3 h.

A continuation of M.E. 45.

Prerequisite: M.E. 45.

47. POWER PLANT DESIGN. Spring quarter. Two hours lecture, nine hours in drawing room. 5 h.

Each student is required to make a design, with estimate and specifications, of a steam-electric power plant to operate most economically on a given load curve.

Textbooks: Gebhardt's Steam Power Plant Engineering; Fernald and Orrok's Engineering of Power Plants.

Prerequisite: M.E. 46.

48. CHEMICAL ENGINEERING DESIGN. Winter quarter. One hour lecture, nine hours in drawing room. 4 h.

A course in the mechanical analysis and design of special classes of machinery and layouts used in chemical processes, such as pumping machinery and piping, crushers and conveyors, presses, condensers, and power apparatus.

Prerequisites: M.E. 7 and 44.

SHOP WORK

1. WOOD WORKING. Autumn or winter quarter. Six hours in shop. 2 h.

The use of all ordinary woodworking tools in a series of gradual exercises, including the use of speed lathe and turning tools.

2. PATTERN MAKING. Winter quarter. Three hours in shop. 1 h.

Making patterns for iron and brass castings with allowance for draft, shrinkage, and finish.

Prerequisite: Shop Work 1.

3. FORGING. Spring quarter. One hour lecture, six hours in shop. 3 h.

Practical work in the forging and welding of iron and steel, tool dressing, tempering, case hardening and annealing. This course is designed to familiarize the student with the properties and structure of the different irons and steels.

Prerequisites: M.E. 2 and 4.

4. FORGING. Autumn quarter. Six hours in shop. 2 h.

This course is similar to Shop Work 2 and made to accommodate electrical engineering students.

Prerequisite: To be taken with E.E. 17.

5. FOUNDRY. Spring quarter. One hour lecture, six hours in shop. 3 h.

Practical work in the making of moulds and cores; the care and operation of the cupola furnace and the brass furnace; mixing of metals; and the study of the properties of alloys.

Prerequisite: M.E. 2 or 3.

6. FOUNDRY. Winter quarter. Six hours in shop. 2 h.

This course is similar to Shop Work 4 and made to accommodate electrical engineering students.

Prerequisite: E.E. 17 or M.E. 2.

7. MACHINE SHOP. Winter quarter. One hour lecture, six hours in shop. 3 h.

Practical work in the machining of the different grades of iron, steel, bronze, and other metals by means of the lathe, planer, milling machine, and drill press. New machines and machine parts are constructed.

Prerequisites: M.E. 1 and 2, and Shop 3.

8. MACHINE SHOP. Spring quarter. Six hours in shop. 2 h.

A continuation of Shop Work 5, taking up grinding, lapping, tool making, and construction of helical gears.

Prerequisite: Shop Work 7.

9. MACHINE SHOP. Autumn quarter. Six hours in shop. 2 h.

This course is similar to Shop Work 5 and made to accommodate electrical engineering students.

Prerequisite: To be taken with E.E. 17.

10. GENERAL SHOP WORK. Spring quarter. Three hours in shop. 1 h.

This course is to give the chemical engineering student a general idea of the processes and tools used in the wood shop, forge shop, machine shop, and foundry.

Prerequisite: M.E. 3.

ENGINEERING MATHEMATICS

PROFESSOR SPERRY, ASSISTANT PROFESSOR HUTCHINSON, AND MR. SKINKER, MR. NELSON, MR. PAGE, MISS WRIGHT, MISS EAVES AND MR. STUBBS.

- 1a. ALGEBRA. Any quarter. 3 h.

A one-quarter course through the quadratic equation and linear systems of simultaneous equations. Logarithms, functions, and their graphical representation are included.

Textbook: Skinner's College Algebra.

Prerequisites: High school algebra through quadratics, plane and solid geometry.

- 1b. ALGEBRA. Any quarter. 3 h.

A one-quarter course in continuation of Eng. Math. 1a, including inequalities, complex numbers, theory of equations, the compound interest law and probability.

Textbook: Skinner's College Algebra.

Prerequisites: Eng. Math. 1a and 2a.

- 2a. TRIGONOMETRY. Any quarter. 2 h.

A one-quarter course through the functions of the sum of two angles and including the fundamental relations and the right triangle.

Textbook: Bauer and Brooke's Plane and Spherical Trigonometry.

Prerequisite: Same as for Eng. Math. 1a.

2b. TRIGONOMETRY. Any quarter. 2 h.

A one-quarter course in continuation of Eng. Math. 2a through the right spherical triangle and the fundamental formulas for the oblique spherical triangle.

Textbook: Bauer and Brooke's Plane and Spherical Trigonometry.

Prerequisites: Eng. Math. 1a and 2a.

3. ANALYTIC GEOMETRY. Any quarter. 5 h.

A one-quarter course including transcendental functions, tangents, and the quadric surfaces. A number of graphs and constructions drawn according to exact directions are required.

Textbook: Wilson and Tracey's Analytic Geometry.

Prerequisites: Eng. Math. 1b and 2b.

4a. CALCULUS. Any quarter. 4 h.

A one-quarter course in fundamental differentiation with applications not including series and partial differentiation.

Textbook: Phillips' Differential and Integral Calculus.

Prerequisite: Eng. Math. 3.

4b. CALCULUS. Any quarter. 4 h.

A one-quarter course in continuation of Eng. Math. 4a covering series, partial differentiation, and elementary integration.

Textbook: Phillips' Differential and Integral Calculus.

Prerequisite: Eng. Math. 4a.

4c. CALCULUS. Any quarter. 4 h.

A one-quarter course in continuation of Eng. Math. 4b covering integration with applications to pressures, centers of gravity, and moments of inertia, and elementary differential equations.

Textbook: Phillips' Differential and Integral Calculus.

Prerequisite: Eng. Math. 4b.

5. DIFFERENTIAL EQUATIONS. Spring quarter. 5 h. Elective.

A one-quarter course in ordinary differential equations with engineering and physical applications. Hyperbolic functions are included.

Textbook: Murray's Differential Equations.

Prerequisite: Eng. Math. 4c.

6. GEODESY AND LEAST SQUARES. Spring quarter. 5 h.

A one-quarter course in the determination of the geodetic positions, the figure of the earth, the theory of least squares and its application to triangulation, leveling, and base line measurement.

Textbook: Ingram's Geodetic Surveying.

Prerequisites: Eng. Math. 4c and C.E. 2.

7. MATHEMATICAL THEORY OF HEAT CONDUCTION. Autumn quarter. 4 h. Elective.

A one-quarter course in Fourier's series and integral with applications to problems in the flow of heat.

Textbook: Ingersoll and Jobel's Mathematical Theory of Heat Conduction.

Prerequisite: Eng. Math. 5.

8. THEORY OF MEASUREMENTS. Winter quarter. 4 h. Elective.

A one-quarter course in the theory of least squares and the precision of measurements with applications to experimental laboratory work.

Textbook: Weld's Theory of Least Squares.

Prerequisite: Eng. Math. 4c.

GENERAL ENGINEERING DRAWING

ASSOCIATE PROFESSOR ALLEN, MR. BRUBAKER, MR. THOMPSON,
AND MISS READ.

1. MECHANICAL DRAWING. Autumn or winter quarter. One hour lecture, nine hours in drawing room. 4 h.

Use of drawing instruments, lettering, linear perspective, machine sketching, principles of isometric, dimetric, oblique, cabinet, and orthographic projections, making of working drawings, tracing, and blue printing.

Textbook: French's Engineering Drawing.

2. MECHANICAL DRAWING. Winter or spring quarter. One hour lecture, nine hours in drawing room. 4 h.

Continuation of Draw. 1.

Prerequisite: Draw. 1.

3. DESCRIPTIVE GEOMETRY. Winter or spring quarter. One hour lecture, nine hours in drawing room. 4 h.

The course covers the orthographic projection of points lines, planes, curved surfaces, etc., in the four angles of projection, intersections, and developments of surfaces. In order to fix the principles, many geometric problems are solved, also a large number of practical applications are worked out.

Textbook: Smith's Practical Descriptive Geometry, second edition.

Prerequisite: Draw. 1 and 2, and Solid Geometry.

ENGINEERING ENGLISH

ASSISTANT PROFESSOR BIRK, MR. SETTLES, AND MR. PETERSON.

1. RHETORIC. Autumn and winter quarter. 3 h.

A course in composition arranged with special reference to engineering students.

2. RHETORIC. Winter or spring quarter. 3 h.

A continuation of Eng. English 1.

3. RHETORIC. Autumn or spring quarter. 3 h.

A continuation of Eng. English 2.

4. ENGINEERING LITERATURE. Spring quarter. 2 h.

In this course the student reads and analyzes selections from the best writings in pure science and engineering. The student is shown the value of clear, concise, and accurate diction.

Supplementary Reading. In addition to the reading in this course the student is required to do a prescribed amount of reading during the sophomore and junior years. The list of required books is printed in a supplementary pamphlet.

Prerequisite: Eng. English 1.

5. TECHNICAL WRITING. Autumn or winter quarter. 2 h.

This is an advanced course in composition with particular reference to the needs of the individual student. Particular attention is given to the preparation of engineering reports and to technical journalism.

Prerequisites: Eng. English 3, and junior standing in the College of Engineering.

ENGINEERING PHYSICS

PROFESSORS LESTER AND WOODROW, ASSOCIATE PROFESSOR PIETENPOL, AND MR. WARNER, AND MR. ELLETT

50. GENERAL PHYSICS. Three quarters. Lectures two hours, recitations two hours. 4 h.

This is an elementary but thorough presentation of the fundamental facts, principles, and applications of modern physics. The lectures are fully illustrated by apparatus and by experiments. The recitations are based upon both the lectures and a textbook which is studied systematically in parallel with the lectures.

Prerequisites: Elementary Physics and Eng. Math. 2.

51. EXPERIMENTAL PHYSICS. Three quarters. One three-hour period. 1 h.

Prerequisites: Elementary Physics and Eng. Math. 2.

It is strongly recommended that Course 51 be taken in parallel with Course 50. When not so taken, Course 50 or its equivalent must precede.

In Courses 50 and 51, Mechanics and Sound are given in the autumn quarter, Heat and Light in the winter quarter, and Magnetism and Electricity in the spring quarter.

The above courses or their equivalent are prerequisite to all other courses in physics.

52. ANALYTICAL MECHANICS—STATICS. Spring quarter. 3 h.

A study of the conditions of equilibrium of particles and rigid bodies, with some attention also to centers of mass and moments of inertia.

Prerequisites: Eng. Phys. 50 and Eng. Math. 4a and 4b, and to be taken with Eng. Math. 4c.

53. ANALYTICAL MECHANICS—DYNAMICS. Autumn quarter. 3 h.

A study of the motions of particles and rigid bodies. Emphasis is laid upon the fundamental physical principles of the subject and an attempt is made to give the student a certain facility in translating physical conceptions into mathematical symbols and mathematical formulæ into physical ideas.

Prerequisites: Eng. Phys. 52 and Eng. Math. 4c.

54a. THEORY OF ELECTRICITY AND MAGNETISM. Autumn quarter. 2 h

The elements of the mathematical theory of electricity and magnetism with applications to the general theory of instruments of fundamental importance in electrical measurements

Prerequisites: Eng. Phys. 50 and 52, and Eng. Math. 4c and to be taken with Eng. Phys. 53.

54b. THEORY OF ELECTRICITY AND MAGNETISM. Winter quarter. 3 h

A continuation of Eng. Phys. 54a.

55. ELECTRICAL MEASUREMENTS I. Autumn quarter. Three three hour periods. 3 h.

A laboratory course intended to accompany and to supplement Eng. Phys. 54.

Prerequisites: Eng. Phys. 50 and 51, and Eng. Math. 4c.

56. ELECTRICAL MEASUREMENTS II. Winter quarter. One hour lecture, six hours in laboratory. 3 h. Elective.

This course deals with selected electrical problems of considerable difficulty requiring a rather advanced knowledge of the theory of electricity and magnetism.

Prerequisites: Eng. Phys. 54 and 55.

57. ELECTRIC WAVES AND RADIO-COMMUNICATION. Autumn quarter 3 h. Elective.

A study of electromagnetic waves and the theory of radio communication involving at least a fair knowledge of electricity and magnetism.

Prerequisite: Eng. Phys. 54, and some knowledge of Alternating Current theory.

3. WIRELESS TELEGRAPHY AND TELEPHONY. Winter quarter. 3 h.
Elective.

A course dealing with practical methods and with the theory and functions of the various apparatus employed.

Prerequisite: Eng. Phys. 57.

9. ELECTRICITY MEASUREMENTS III. Spring quarter. Six hours in laboratory. 2 h. Elective.

A course in electrical measurements at radio frequencies, intended primarily to supplement Eng. Physics 58.

Other courses in the College of Arts and Sciences may be found on page 115 and those in the Graduate School on page 221.

ENGINEERING CHEMISTRY

PROFESSORS EKELEY AND GERMANN, ASSOCIATE PROFESSOR DEAN,
ASSISTANT PROFESSORS POE AND VAN VALKENBURGH,
AND MR. CORNELL.

1. GENERAL CHEMISTRY LECTURES. Three quarters. 3 h.

A course of lectures dealing with the laws and theories of chemistry, together with a study of the elements and their most important compounds.

2. GENERAL CHEMISTRY LABORATORY. Three quarters. One three-hour period. 1 h.

A laboratory course designed to accompany Eng. Chem. 1.

3. QUALITATIVE ANALYSIS. Autumn quarter. Three hours lecture, twelve hours in laboratory. 7 h.

A course in the separation and identification of the more common bases and acids. The lectures deal with the chemistry of the analytical reactions, special emphasis being given to the application of mass-action, ion-product, etc.

Prerequisites: Eng. Chem. 1 and 2.

4. QUANTITATIVE ANALYSIS. Winter and spring quarters. Two hours lecture, twelve hours in laboratory. 6 h.

Elementary gravimetric and volumetric analysis, chemical calculations, etc.

Prerequisite: Eng. Chem. 3, or to be taken with Eng. Chem. 3.

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5. ORGANIC CHEMISTRY LECTURES. Three quarters. 3 h.

A study of the methods of preparation and the properties of the more important organic compounds. Special stress is laid upon the theories underlying the subject and the proofs of the constitution of most of the substances studied.

Prerequisites: Eng. Chem. 3 and 4.

6. ORGANIC CHEMISTRY LABORATORY. Spring quarter. Nine hours in laboratory. 3 h.

A laboratory course supplementing Eng. Chem. 5, designed to give practice in organic laboratory methods.

This course may be taken with Eng. Chem. 5.

7. PHYSICAL CHEMISTRY LECTURES. Three quarters. 3 h.

A lecture course presenting the conceptions of the modern physico-chemical theories concerning the states of aggregation of matter, solutions, thermo-chemistry, equilibria, chemical kinetics, electro-chemistry, and actino-chemistry.

Prerequisites: Eng. Chem. 5 and 6.

8. PHYSICAL CHEMISTRY LABORATORY. Winter and spring quarters. Six hours in laboratory. 2 h.

A laboratory course supplementing Eng. Chem. 7, consisting of the determinations of densities, molecular weights, thermochemical and optical constants, conductivity of solutions, electromotive force, transference numbers, viscosity, surface tension, electrochemical equivalents, transition points, etc.

10. TECHNICAL ANALYSIS. Spring quarter. Nine hours in laboratory. 3 h.

A course in the quantitative analysis of various technical substances. The methods used are those usually employed in the industries.

Prerequisite: Senior standing.

11. INDUSTRIAL CHEMISTRY. Spring quarter. 4 h.

A lecture course on the principal chemical industries.

Prerequisites: Eng. Chem. 6 and 7.

GRADUATE SCHOOL

FACULTY*

- GEORGE NORLIN, Ph.D., LL.D., President of the University.
- OLIVER C. LESTER, A.B., 1897, Central College; A.M., 1902, Ph.D., 1904, Yale. Dean; Professor of Physics.
- J. RAYMOND BRACKETT, A.B., 1875, A.M., 1878, Bates; Ph.D., 1880, Yale. Dean of the Graduate School, Emeritus; Professor of Comparative and English Literature, Emeritus.
- IRA M. DELONG, A.B., 1878, A.M., 1881, Simpson College; LL.D., 1914, University of Denver. Professor of Mathematics.
- FRED B. R. HELLEMS, A.B., 1893, Toronto; Ph.D., 1898, Chicago; LL.D., 1913, Colorado College. Professor of History of Art.
- CHARLES C. AYER, A.B., 1889, Harvard; Ph.D., 1896, Strasburg. Professor of Romance Languages.
- FRANCIS RAMALEY, B.S., 1895, Ph.D., 1899, Minnesota. Professor of Biology.
- MELANCHTHON F. LIBBY, A.B., 1890, Toronto; Ph.D., 1900, Clark. Professor of Philosophy.
- JOHN BERNARD EKELEY, A.B., 1891, A.M., 1893, Colgate; Ph.D., 1902, University of Freiburg, Baden, Germany; Sc.D., 1911, Colgate. Professor of Chemistry.
- †RUSSELL D. GEORGE, A.B., 1897, A.M., 1898, McMaster. Professor of Geology.
- JOHN D. FLEMING, A.B., 1875, Central University; LL.B., 1879, Louisville; LL.D., 1910, Central University. Charles Inglis Thomson Professor of Law.
- EDWARD JACKSON, C.E., 1874, A.M., 1878, Union College; M.D., 1878, Pennsylvania; Sc.D., 1914, Union College.
- HERBERT S. EVANS, B.S. (E.E.), 1898, E.E., 1900, Nebraska. Professor of Electrical Engineering.
- JOHN A. HUNTER, B.S., 1890, M.E., 1896, Pennsylvania State College. Professor of Mechanical Engineering.

* This Faculty is made up of Professors and Instructors of the various Faculties of the University who offer work in the Graduate School.

† On leave of absence, 1920-1921.

- *THEODORE D. A. COCKERELL, Sc.D., 1913, Colorado College. Professor of Zoology.
- *JAMES F. WILLARD, B.S., 1898, Ph.D., 1902, Pennsylvania. Professor of History.
- FRANK E. THOMPSON, A.B., 1901, Leland Stanford. Professor of Education.
- ROSS C. WHITMAN, A.B., 1894, M.D., 1899, Michigan. Professor of Pathology.
- JUNIUS HENDERSON, A.B., 1908, Colorado. Professor of Natural History.
- JOHN S. McLUCAS, A.B., 1893, South Carolina College; A.B., 1895, A.M., 1899, Harvard. Professor of English.
- GRACE VAN SWERINGEN BAUR, B.L., 1893, Cornell; A.M., Ph.D., 1904, University of Berlin. Professor of Germanic Languages.
- MILO G. DERHAM, A.B., 1892, Cornell; Ph.D., 1904, Colorado. Professor of Classics.
- LAWRENCE W. COLE, A.B., 1899, Oklahoma; A.M., 1904, Ph.D., 1910, Harvard. Professor of Psychology.
- JAMES C. TODD, Ph.B., 1897, Wooster College; M.D., 1900, Pennsylvania. Professor of Clinical Pathology.
- HOMER C. WASHBURN, Ph.C., 1902, B.S. (Phar.), 1904, Michigan. Professor of Pharmacy.
- †LORAN D. OSBORN, A.B., 1892, Michigan; Ph.D., 1900, Chicago. Professor of Sociology.
- FREDERICK A. BUSHEE, B.L., 1894, Dartmouth College; A.M., 1898, Ph.D., 1902, Harvard. Professor of Economics and Sociology.
- RALPH B. CRAWFORD, A.B., 1905, A.M., 1907, Colorado; Ph.D., 1913, Yale. Professor of Mineralogy and Petrology.
- WILLIAM R. ARTHUR, A.B., 1899, Washburn; LL.B., 1908, Northwestern. Professor of Law.
- CHARLES M. MEADER, A.B., 1906, Colby; M.D., 1910, Harvard. Professor of Medicine.
- ARNOLD JOHNSON LIEN, A.B., 1908, A.M., 1909, Minnesota; Ph.D., 1913, Columbia. Professor of Political Science.
- ROBERT CURTIS LEWIS, Ph.B., 1909, Ph.D., 1912, Yale. Professor of Biochemistry.
- HERBERT S. HADLEY, A.B., 1892, Kansas; LL.B., 1894, LL.D., 1909, Northwestern; LL.D., 1910, Missouri. Professor of Law.

* On leave of absence, 1920-1921.

† On leave of absence, 1920-1921; Resigned February 15, 1921.

- WHITNEY C. HUNTINGTON, B.S. (C.E.), 1910, C.E., 1912, M.S., 1913, Colorado. Professor of Civil Engineering.
- CHARLES S. SPERRY, A.B., B.S. (C.E.), 1911, C.E., 1915, Colorado. Professor of Engineering Mathematics.
- JAY W. WOODROW, A.B., 1907, Drake; A.B., 1910, Oxford; Ph.D., 1913, Yale. Professor of Physics.
- *CHARLES M. GRUBER, A.B., 1911, A.M., 1912, Kansas; Ph.D., 1914, Harvard. Professor of Physiology and Pharmacology.
- IVAN E. WALLIN, B.S., 1905, Iowa; A.M., 1908, Nebraska; Sc.D., 1915, New York University. Professor of Anatomy.
- GEORGE F. REYNOLDS, Ph.B., 1898, Lawrence College; Ph.D., 1905, Chicago. Professor of English Literature.
- HARRY M. BARRETT, A.B., 1890, A.M., 1893, Allegheny; Litt.D., 1914, University of Denver. Professor of School Administration.
- FRANK WILBUR CHACE, Mus.Doc., 1905, Regents of University of State of New York. Professor of Music.
- FRANK E. E. GERMANN, A.B., 1911, Indiana; Dr. ès Sc., 1914, University of Geneva, Switzerland. Professor of Chemistry.
- OSCAR M. GILBERT, M.D., 1898, Barnes Medical School. Associate Professor of Medicine.
- C. HENRY SMITH, Ph.B., 1899, Brown. Associate Professor of Bibliography.
- CARL C. ECKHARDT, Ph.B., 1902, Ohio State; A.M., 1904, Michigan; Ph.D., 1908, Cornell. Associate Professor of History.
- FRANK S. BAUER, B.S. (M.E.), 1911, Illinois; M.E., 1915, Colorado. Associate Professor of Mechanical Engineering.
- PHILIP G. WORCESTER, A.B., 1909, A.M., 1911, Colorado. Associate Professor of Geology.
- FRANK G. ALLEN, B.S. (M.E.), 1901, Illinois. Associate Professor of Engineering Drawing.
- IVAN C. CRAWFORD, B.S. (C.E.), 1912, C.E., 1915, Colorado. Associate Professor of Civil Engineering.
- GEORGE H. LIGHT, A.B., 1899, A.M., 1900, Princeton; Ph.D., 1916, Yale. Associate Professor of Mathematics.
- †THOMAS MAITLAND MARSHALL, B.L., 1900, Michigan; M.L., 1910, Ph.D., 1914, California. Associate Professor of History.

* On leave of absence, 1920-1921.

† Resigned September, 1920.

- †OSCAR A. RANDOLPH, B.S., 1911, Missouri School of Mines; M.S., 1913, Ph.D., 1916, Illinois. Associate Professor of Physics.
- SIEBELT L. SIMMERING, B.S. (M.E.), 1910, Colorado; M.S., 1913, Illinois; M.E., 1916 Colorado. Associate Professor of Mechanical Engineering.
- W. CLINTON DUVALL, B.S. (E.E.), 1912, Colorado. Associate Professor of Electrical Engineering.
- CARBON GILLASPIE, M.D., 1905, Colorado. Associate Professor of Anatomy.
- JONTA BOEN MARCELLUS, B.S. (C.E.), 1904, Kansas. Associate Professor of Civil Engineering.
- S. ANTOINETTE BIGELOW, A.B., 1893, Wellesley; A.M., 1910, Columbia. Associate Professor of English Literature.
- PAUL M. DEAN, A.B., 1908, A.M., 1911, Colorado; Ph.D., 1916, Illinois. Associate Professor of Chemistry.
- WILLIAM B. PIETENPOL, A.B., 1909, Central College; A.M., 1914, Ph.D., 1916, Wisconsin. Associate Professor of Physics.
- ALFRED H. SWEET, A.B., 1913, Bowdoin; A.M., 1914, Ph.D., 1917, Harvard. Associate Professor of History.
- WILLIAM F. BAUR, Ph.B., 1893, Michigan. Assistant Professor of Germanic Languages.
- WALTER FRANK MALLORY, B.S. (M.E.), 1914, Colorado. Assistant Professor of Mechanical Engineering.
- FRANCIS WOLLE, A.B., 1911, Pennsylvania; A.M., 1916, Colorado. Assistant Professor of English Literature.
- IRENE P. MCKEEHAN, A.B., 1903, Minnesota; A.M., 1917, Colorado. Assistant Professor of English.
- ELIZA G. WILKINS, A.B., 1900, A.M., 1904, Wellesley; Ph.D., 1916, Chicago. Assistant Professor of Classics.
- EDWIN B. PLACE, A.B., 1913, A.M., 1916, Colorado; Ph.D., 1919, Harvard. Assistant Professor of Romance Languages.
- W. OTTO BIRK, A.B., 1914, Wabash College; A.M., 1917, Cincinnati. Assistant Professor of Engineering English.
- MERVIN S. COOVER, E.E., 1914, Rensselaer Polytechnic Institute. Assistant Professor of Electrical Engineering.
- CHARLES ANGEVINE HUTCHINSON, A.B., 1916, A.M., 1918, Wittenberg College. Assistant Professor of Engineering Mathematics.

† Died April 11, 1920.

- HUGH N. KINGERY, A.B., 1908, A.M., 1909, Wabash; Ph.D., 1917, Cornell. Assistant Professor of Anatomy.
- CHARLES F. POE, A.B., 1911, A.M., 1911, Ph.C., 1914, B.S. (Phar.), 1914, Colorado. Assistant Professor of Chemistry.
- BRYANT SMITH, A.B., 1913, Guilford College; LL.B., 1916, A.M., 1919, Colorado. Assistant Professor of Law.
- SEVERANCE BURRAGE, B.S., 1892, Massachusetts Institute of Technology; D.P.H., 1910, Valparaiso; Ph.D., 1909, Hanover College. Assistant Professor of Bacteriology and Hygiene.
- OTTO S. KRETSCHMER, A.B., 1913, Catholic University of America; A.M., 1920, M.D., 1920, Colorado. Assistant Professor of Physiology and Pharmacology.
- ARTHUR J. TIEJE, A.B., 1908, A.M., 1909, Cornell; Ph.D., 1920, Minnesota. Assistant Professor of Geology.
- FULTON H. ANDERSON, A.B., 1917, Dalhousie; A.M., 1918, Ph.D., 1920, Toronto. Assistant Professor of Philosophy.
- CLOUGH T. BURNETT, M.D., 1908, Michigan. Assistant Professor of Medicine.
- COLIN B. GOODYKOONTZ, A.B., 1912, Colorado; Litt.M., 1914, California; Ph.D., 1921, Harvard. Assistant Professor of American History.
- MAUDE E. CRAIG, A.B., 1912, A.M., 1914, Colorado. Instructor in Classics.
- GLADYS C. CURTIS, A.B., 1914, A.M., 1916, Colorado. Instructor in Education.
- CHARLES H. MCCORMICK, B.S. (E.E.), 1907, E.E., 1912, Iowa State College. Instructor in Electrical Engineering.
- OLIN INGRAHAM, Ph.B., 1904, Wesleyan; A.M., 1905, Columbia. Instructor in Economics.
- BESS R. GREEN, A.B., 1907, A.M., 1910, Illinois. Instructor in Biology.
- WAYNE S. BEATTIE, B.S. (M.E.), 1917, Colorado. Instructor in Mechanical Engineering.
- HERBERT C. HANSON, A.B., 1914, Minnesota; A.M., 1916, Nebraska. Instructor in Biology.
- RUSSELL H. LINDSAY, E.E., 1918, Lehigh. Instructor in Electrical Engineering.

GRADUATE COMMITTEE

OLIVER C. LESTER, Dean.

FRANCIS RAMALEY, Secretary.

ARNOLD J. LIEN.

MILO G. DERHAM.

HERBERT S. EVANS.

GENERAL STATEMENT

GENERAL REQUIREMENTS

ADMISSION.—Graduates of the University of Colorado will be admitted to the Graduate School upon application.

Graduates of other colleges and scientific schools maintaining standards equal and similar to those of the University of Colorado will be admitted upon presentation of a certificate of graduation and the payment of the matriculation fee. A student from another institution should first submit his credits to the Registrar for rating.

A student who lacks not more than ten undergraduate credit-hours of completing the requirements for the bachelor's degree may be enrolled in the Graduate School for enough work to complete his schedule.

A graduate who wishes to work toward a master's degree in summer quarters should apply for admission to the Graduate School at or preferably before the beginning of the first summer quarter.

Admission to the Graduate School will not be considered as equivalent to candidacy for a degree. A graduate student who wishes to become a candidate for a degree must make special application at the time and in the manner prescribed under the requirements for the degree sought.

SELECTION OF WORK.—A major subject of study should be chosen by each graduate student in conference with the Dean of the Graduate School and the minor subjects in conference with the professor in charge of the major subject. A subject chosen as a minor shall be logically related to the major subject. In case the dean and the major professor disagree as to the grouping of subjects, the question shall be decided by the Graduate Committee.

All work offered for credit toward an advanced degree must be chosen from courses of graduate rank and at least one-half must be done in classes primarily for graduates. A graduate who chooses courses exclusively of undergraduate rank will not be enrolled in the Graduate School.

TUITION AND FEES.—Graduate students in residence pay no tuition except in the Summer Quarter and in the Schools of Medicine and Law. The fees to be paid depend largely upon the nature of the work chosen. A detailed statement regarding fees in the regular session may be found on pages 36-38, inclusive; fees in the Summer Quarter on page 283; fees in the Extension Division on pages 294-295.

RESIDENCE AND ADVANCED STANDING.—The Graduate Committee may allow credit for work done in other universities, but in general, at least one full year of residence at the University of Colorado will be required for each higher degree. A year's residence means that a student is located at the University not later than ten days after the beginning of a quarter, and gives his undivided attention to academic work equivalent to fifteen hours per week for three quarters.

With the approval of the Dean of the Graduate School and of the department concerned, work of graduate rank given to graduate students in extension classes conducted by resident members of the faculty may be considered as work done in residence.

The requirement as to residence for a master's degree may be met by attendance during three full summer quarters, but a certain amount of work in connection with the Extension Division is allowed under the following conditions: (a) The student must have done satisfactory work in residence during one summer quarter in a course of advanced study arranged and approved by the department in which his major subject lies. (b) With the consent of the departments involved, he may pursue through the Extension Division work in continuation of or collateral to the major subject to the extent of fifteen credit hours. (c) The student must continue his course in residence for at least one other quarter.

The requirements of residence during a summer quarter before graduate work is permitted under this plan may be waived, with the consent of the department involved, in the case of graduates of this University or of graduate students in Extension classes conducted by members of the University Faculty. However, this does not excuse the candidate from residence at the University during at least four terms each consisting of half a quarter.

A graduate student who is an assistant in the University may receive credit for a year's residence, provided his duties do not

amount to more than one-half of the regular schedule, and provided, further, that he obtains graduate credit of not less than six hours each quarter and a total credit during the year of not less than twenty-seven hours.

An instructor on full time or an assistant in more than half time, who is a graduate student, may satisfy the residence requirement of one year in two years, provided he obtains graduate credit of not less than three hours each quarter and a total credit during the two years of not less than twenty-seven hours.

Credit will not be granted for work done *in absentia* except (1) to candidates for the degree Doctor of Ophthalmology; and (2) for a limited amount of work toward a master's degree, in connection with the Extension Division as explained above.

THE DEGREE MASTER OF ARTS OR MASTER OF SCIENCE

APPLICATION FOR ADMISSION TO CANDIDACY

A graduate student who wishes to become a candidate for a master's degree should make application after the completion of his first, and before the beginning of his third quarter, regardless of whether the work is done during the regular year or in summer quarters. This application must be on a blank form furnished at the office of the Dean of the Graduate School and should contain all the information there called for. It must be accompanied by a statement signed by the professor in charge of the major subject certifying that satisfactory work is being done in both major and minor subjects and approving the application for candidacy.

A graduate student in the field of science may become a candidate for either degree, Master of Arts or Master of Science, depending upon whether he places emphasis upon the broad philosophical foundations and purely scientific aspects of his work, or upon its applied aspects. The degree to be awarded will be decided by the Graduate Committee on application by the candidate and recommendation by the major professor.

A graduate student holding the degree B.S. in Engineering should apply for the degree Master of Science.

The Graduate Committee will pass upon the application as soon as practicable and in any case not later than the first week of the third quarter.

REQUIREMENTS IN ARTS AND SCIENCE

AMOUNT AND NATURE OF WORK.—The minimum requirement for either degree is one full year devoted to study equivalent to not less than fifteen credit-hours per quarter or a total of not less than forty-five credit-hours.

Although the amount of work is specified in credit-hours this does not mean merely another year of undergraduate class exercises. The candidate is expected to do a different type of work and to show not only scholarly attainment but some degree of initiative and power of independent thought.

ARRANGEMENT AND DISTRIBUTION OF WORK.—Studies leading to a master's degree must be divided between two subjects known as the major subject and the minor subject. In special cases a second minor subject may be permitted. The first minor subject must consist of study equivalent to not less than nine credit-hours, and must be in a different department from that of the major subject. A department is understood to mean a division of studies under the charge of a head professor. The choice of the minor subject must be approved by the professor in charge of the major work.

A student who intends to enter the summer quarter, and who wishes to work toward a master's degree, should communicate early in the spring with a resident professor in charge of the major subject and should consult with the instructor in charge of the major subject in the summer quarter before registering for courses.

LANGUAGES.—Such knowledge of ancient and modern languages as may be deemed necessary by the professor in charge of the major subject is required of a candidate.

THESIS.—A thesis that counts for not less than six nor more than twelve of the total of forty-five credit-hours must be written under the direction of the professor in charge of the major subject, and must be finished and submitted for his approval not later than thirty days before the time at which the degree is to be conferred. Two copies (or more at the discretion of the major professor) printed or typewritten, and bound, shall be placed in the University Library before the diploma is delivered.

EXAMINATIONS.—The written examinations of each quarter shall be taken upon such subjects as are pursued in class. On completion of the required work there shall be held (a) an examination on all

work presented which was done during former years; (b) such additional examinations upon other subjects, upon the thesis, and upon the work of the previous quarters of the year as each instructor may require.

The final examination is oral, or oral and written, the oral examination being conducted in the presence of a committee chosen by the dean and the departments concerned. In the case of candidates in the summer quarter, two members of this committee shall be professors from the regular faculty of the University of Colorado.

REQUIREMENTS IN ENGINEERING

AMOUNT AND NATURE OF WORK.—A candidate for the degree Master of Science shall devote at least one full year to study equivalent to not less than fifteen credit-hours per quarter, or a total of not less than forty-five credit-hours. However, the candidate is expected to study subjects and not class assignments and to show not only considerable attainment in the field of science, but some degree of initiative and ability to do independent work.

A candidate for the degree Master of Science in Sanitary Engineering must have included in his previous work courses in Elementary Bacteriology, Water Supply, Sewerage, and Structural Engineering.

DISTRIBUTION OF WORK.—The student must choose a major subject to occupy one-half his time from the graduate courses offered in the field in which he received his bachelor's degree. The other half of his work may be chosen from other branches of engineering or from allied fields in pure science. This choice, however, must have the approval of the major professor.

THESIS.—A thesis which counts for not less than nine nor more than fifteen of the total of forty-five credit-hours must be prepared under the supervision of the professor in charge of the major subject and shall be submitted for his approval not later than thirty days before the time at which the degree is to be received.

The thesis in form shall comply with the specifications adopted by the faculty of the College of Engineering for the bachelor's thesis. Two copies of the thesis, printed or typewritten, and bound, shall be placed in the University Library before the diploma is conferred.

EXAMINATIONS.—The requirements as to examinations are the same as those in Arts and Science.

THE DEGREE ENGINEER

GENERAL REQUIREMENTS.—Following the degree B.S. in engineering, candidates who fulfill the requirements outlined below may receive the degree Civil Engineer, Electrical Engineer, or Mechanical Engineer, depending upon the nature of the undergraduate course. These degrees are the professional second degrees as distinguished from the academic second degree, Master of Science, granted for work in residence. They are conferred only for proved ability to plan and direct professional work or original investigation in the field of engineering and in accordance with one of the following plans:

1. After not less than four years of successful professional practice, at least two of which must have been spent in responsible charge of the design, construction, or operation of engineering works, and the submission of a satisfactory thesis.

2. After the degree Master of Science from this University, not less than two years of successful professional practice at least one of which must have been spent in responsible charge of engineering work, and the submission of a satisfactory thesis.

3. Graduates of other institutions, with the degree B.S. in engineering following an approved four-year course, must spend not less than one academic year in resident graduate study at this University. This must be preceded or followed by not less than two years of successful professional practice, at least one of which must be spent in a responsible position. An approved thesis must also be submitted.

The successful teaching of engineering subjects may be regarded as practical experience except that a candidate must have had at least one year of successful practical work in a responsible position or must have proved his ability to plan and carry through original investigation in applied science.

APPLICATION FOR CANDIDACY.—An application for admission to candidacy must be filed with the Dean of the Graduate School, on a blank form provided for that purpose, not later than November 1 of the year preceding the Commencement at which the degree is ex-

pected. At the same time the applicant must file with the Dean of the College of Engineering, as chairman of the special committee in charge, a detailed statement of his professional experience and study. Not later than December 15 following he must submit, for approval by the committee in charge, an outline of his proposed thesis. Upon favorable recommendation regarding his thesis and his professional experience the applicant will be admitted to candidacy by the Graduate Committee. If, however, the candidate does not complete the requirements within two years, his name will be dropped from the list of candidates.

THESIS.—An original thesis, giving evidence of high professional attainments and general fitness to receive the degree sought, must be submitted not later than May 1 for the approval of the committee in charge. The thesis in form shall comply with the specifications adopted by the Faculty of the College of Engineering for all theses. If approved, at least two copies printed or typewritten, and bound, shall be deposited in the University Library before the diploma is conferred.

THE DEGREE DOCTOR OF OPHTHALMOLOGY

PRELIMINARY REQUIREMENTS.—The professional degree Doctor of Ophthalmology will be granted to students who fulfill the requirements outlined below. Before entering upon the work for the degree the student must have met the following preliminary requirements:

1. Graduation at least one year previously from a Class A Medical School. Graduates of schools not in Class A will be admitted to the work for the degree only after the fulfillment of further requirements prescribed by the special committee in charge.

2. At least one year spent in one of the following ways: (a) as an interne in an approved general hospital; (b) as an interne in an approved ophthalmic hospital; (c) in clinical work in ophthalmology under an approved chief either in a medical school clinic or in a private clinic; (d) as an assistant in histology and pathology, or in laboratory physics.

NATURE AND ARRANGEMENT OF WORK.—After meeting the preliminary requirements a student who expects to become a candidate for the degree must complete satisfactorily the following program of professional and academic work:

1. One year of clinical ophthalmology spent either (a) as an interne in an approved ophthalmic hospital; or (b) as an assistant in a public ophthalmic clinic of not less than six hours per week.

Either (a) or (b) is to be accompanied by an outlined course of reading.

2. Summer Course at Denver. This is a course of six weeks in ophthalmology with full time in clinical laboratory and lecture work, concluding with formal examinations in all work done. During this time the subject and an outline of the proposed thesis must be submitted for the approval of the head of the department.

3. Advanced Optics. The three weeks immediately following are devoted to an intensive advanced course dealing with selected subjects of special interest in physical optics and with the theory and practice of optical instruments. It will be given partly at Denver and partly at Boulder, and is required of all applicants for the degree who can not furnish evidence of equivalent training.

4. The academic year following 2 and 3 is to be devoted to clinical ophthalmology and to work on the thesis, the former to be pursued either (a) as an interne in an approved ophthalmic hospital; or (b) as an assistant in an approved public ophthalmic clinic of not less than six hours per week; or (c) as a full time assistant in an approved private clinic.

Either (a), (b), or (c) is to be accompanied by an outlined course of reading.

APPLICATION FOR CANDIDACY.—During the time devoted to Course 3 above, a student who wishes to receive the degree must file with the Dean of the Graduate School, on a blank form provided for that purpose, an application for admission to candidacy. At the same time the applicant must file with the head of the Department of Ophthalmology, as chairman of the committee in charge, a detailed statement of his professional experience and study with such evidence as may be necessary to show that he has met the specified requirements. Upon favorable recommendation regarding his thesis and his general record the applicant will be admitted to candidacy by the Graduate Committee. If, however, the candidate does not complete the requirements within five years his name will be dropped from the list.

THESIS.—An original thesis giving evidence of high professional attainments must be submitted to the chairman of the committee in charge not later than April 15 preceding the Commencement at which the degree is expected. If approved by the committee, at least two copies printed or typewritten, and bound, shall be deposited in the University Library before the diploma is conferred.

ADVANCED COURSE AND EXAMINATION.—Three weeks before the Commencement at which he expects to receive the degree the candidate shall report in Denver to the head of the department for an intensive advanced course in ophthalmology and for a thorough test in practical work in the clinic.

During this time the candidate shall also appear before a committee chosen by the Dean of the Graduate School and the head of the department, for the purpose of defending his thesis and of standing examinations upon clinical ophthalmology, including diagnosis, therapeutics, and operative technique.

THE DEGREE DOCTOR OF PHILOSOPHY

ADMISSION TO CANDIDACY.—A graduate student who has been admitted to the Graduate School and who wishes to become a candidate for the degree Doctor of Philosophy, may make application at any time after admission, provided that he shall not apply later than eight months before the time at which he expects to receive the degree. The form of application is the same as for a master's degree.

AMOUNT, DISTRIBUTION, AND NATURE OF WORK.—The minimum requirement for the degree Doctor of Philosophy is not less than three full years devoted to study equivalent to not less than ninety credit-hours, and to the preparation of a thesis.

Studies leading to the degree must be divided into three groups, known as the major subject, the first minor subject, and the second minor subject. An amount of work equivalent to at least twenty-two credit-hours shall be devoted to the first minor subject and the equivalent of twelve hours to the second. Each subject shall be in a different department from the others.

However, the degree shall not be granted for the completion of any specified period of residence and number of hours study.

It will be conferred only for high attainments in general and marked ability in a special field, including particularly power in original investigation, shown by a thesis.

Part of the time required may be spent at some other university of approved standing, provided the last year of three consecutive quarters is spent at the University of Colorado.

LANGUAGE REQUIREMENT.—A reading knowledge of both French and German, with special reference to the candidate's field of study, is required at least one year before the time at which he expects to finish his work for the degree. Upon this requirement the candidate must satisfy a committee consisting of the heads of the French and the German departments and of the professor in charge of the major subject. A knowledge of other languages also may be required if demanded by the major professor.

THESIS.—A thesis showing power in original investigation shall be written upon some subject approved by a committee consisting of the heads of the three departments concerned. It must be finished and submitted in typewritten form at least sixty days before the time at which the degree is to be conferred, and must be approved by the committee before the candidate can proceed further toward the degree. If the thesis is approved, three copies (or more, at the discretion of the committee), printed or typewritten, and bound shall be placed in the University Library before the diploma is delivered.

EXAMINATIONS.—The regular written examinations on all subjects taken in course may be required at the discretion of each instructor, but in any case, a preliminary and a final examination are required. The preliminary examination is oral, or oral and written, the oral examination being conducted by all instructors concerned, in the presence of a committee consisting of the heads of the departments in which the major and minor subjects lie, and is held at least six months before the time at which the candidate expects to receive the degree.

The final examination is oral and is conducted in the presence of a committee consisting of the heads of the departments interested and two other professors appointed by the Dean of the Graduate School, and in the presence of visitors.

ORDER OF DESCRIPTION OF COURSES

Few of the courses outlined below are available at any one time, but each department usually offers one or more advanced courses each quarter. Courses not scheduled here may be arranged to meet the needs of students of ability. Students intending to take work leading toward an advanced degree will find advantage in consulting with the dean and the head of the department concerned as early as the middle of the previous quarter.

Biochemistry.	History.
Biology.	Law.
Chemistry.	Mathematics.
Civil Engineering.	Mechanical Engineering.
Classics.	Music.
Education.	Ophthalmology.
Electrical Engineering.	Philosophy.
English Language.	Physics.
English Literature.	Psychology.
Geology, Mineralogy, and Geography.	Romance Languages and Literatures.
Germanic Languages and Literatures.	Social Science.

DESCRIPTION OF COURSES*

BIOCHEMISTRY†

PROFESSOR LEWIS.

1. BIOCHEMISTRY.

For Graduates Only.

4. CHEMISTRY OF BLOOD.

5. BIOCHEMICAL PREPARATIONS.

6. BIOCHEMICAL SEMINAR.

7. RESEARCH IN BIOCHEMISTRY.

* Graduate courses that may be elected by undergraduates also are listed under the same numbers as in the College of Arts and Sciences. See page 69. Courses for graduates only are described here.

† For description of these courses see under School of Medicine.

BIOLOGY

I. GENERAL BIOLOGY

PROFESSORS COCKERELL AND RAMALEY.

3. HISTORY OF BIOLOGY.
 4. PRINCIPLES OF HEREDITY.
 5. PLANKTONOLOGY.
 6. MICROBIOLOGY.
 7. TEACHERS' COURSE IN BIOLOGY.
 9. GENETICS.
- For Graduates Only.*
10. SPECIAL PROBLEMS.
Genetics, History of Biology, Biological Pedagogics.

II. BOTANY

PROFESSOR RAMALEY, MR. HANSON, AND MISS JOHNSON.

4. ADVANCED ECONOMIC BOTANY.
 5. BOTANY OF COLORADO (PLANT TAXONOMY).
 6. PLANT PHYSIOLOGY.
 7. PLANT ECOLOGY.
 8. FOREST BOTANY.
 9. ADVANCED INDUSTRIAL BOTANY.
 11. PLANT ANATOMY.
 12. MYCOLOGY.
 13. ADVANCED PLANT MORPHOLOGY.
- For Graduates Only.*
14. SPECIAL PROBLEMS.
Plant Anatomy, Agrostology, Ecology, Floristics, Areal Botany, Plant Genetics, Gametophytic and Sporophytic Embryology.

III. ZOOLOGY

PROFESSOR COCKERELL AND MISS GREEN.

2. VERTEBRATE ANATOMY.
3. PHYSIOLOGY.
5. COMPARATIVE MORPHOLOGY.
6. ANIMAL ECOLOGY.
7. CYTOLOGY.
8. ENTOMOLOGY.

For Graduates Only.

13. SPECIAL PROBLEMS.

Taxonomy of Hymenoptera, Coccidæ (scale insects), Paleontology, Ichthyology, Protozoology, Pond and Stream Zoology, and other topics as opportunity offers.

CHEMISTRY

PROFESSORS EKELEY AND GERMANN, ASSOCIATE PROFESSOR DEAN,
AND ASSISTANT PROFESSORS POE AND VAN VALKENBURGH.

3. ADVANCED INORGANIC CHEMISTRY.
- 4-5. QUALITATIVE ANALYSIS.
6. QUANTITATIVE ANALYSIS.
7. ORE ANALYSIS.
8. ANALYSIS OF IRON AND STEEL.
9. GAS ANALYSIS.
10. ELEMENTARY ORGANIC ANALYSIS.
11. SANITARY WATER ANALYSIS.
12. MINERAL WATER ANALYSIS.
13. ORGANIC CHEMISTRY.
14. ORGANIC CHEMISTRY LABORATORY.
15. PHYSICAL CHEMISTRY LECTURES.
16. PHYSICAL CHEMISTRY LABORATORY.
17. ELECTROCHEMICAL ANALYSIS.
18. FOOD ANALYSIS.
19. DRUG ASSAYING. PHARMACOPOEIAL TESTING.
20. DRUG ASSAYING. ORGANIC ANALYSIS.
21. DRUG ASSAYING. ALKALOIDAL ASSAYING.
22. ADVANCED FOOD ANALYSIS.
23. HISTORY OF CHEMISTRY.
25. BIOCHEMISTRY.
26. INDUSTRIAL CHEMISTRY.
27. CHEMICAL ENGINEERING MATERIALS.
28. ORGANIC PREPARATIONS.

For Graduates Only.

29. GLASS BLOWING. Three quarters. Maximum of two hours credit.

A laboratory course intended to familiarize the research student with the more difficult tasks in making and repairing glass apparatus.

30. ADVANCED PHYSICAL CHEMISTRY. Three quarters. M. W. F. 3 h.
Kinetic theory.
31. ADVANCED PHYSICAL CHEMISTRY. Three quarters. M. W. F. 3 h.
Thermodynamics and chemistry.
32. RESEARCH.

CIVIL ENGINEERING

PROFESSOR HUNTINGTON, ASSOCIATE PROFESSORS CRAWFORD AND
MARCELLUS.

For Graduates Only.

101. RAILWAY LOCATION AND CONSTRUCTION.
102. YARDS AND TERMINALS.
104. RAILWAY OPERATION, MANAGEMENT, AND VALUATION.
105. TUNNELS AND CANALS.
110. ADVANCED BRIDGE DESIGN.
111. SWING AND MOVABLE BRIDGES.
112. METALLIC ARCHES.
113. INDETERMINATE STRUCTURES.
114. STEEL OFFICE BUILDING CONSTRUCTION.
115. STEEL MINE AND MILL STRUCTURES.
120. REINFORCED CONCRETE CONSTRUCTION.
130. GENERAL WATER WORKS CONSTRUCTION AND MANAGEMENT.
131. TANKS, STANDPIPES, AND RESERVOIRS.
140. SEWAGE PURIFICATION AND DISPOSAL WORKS.
141. GENERAL SEWERAGE DESIGN AND CONSTRUCTION.
150. IRRIGATION ENGINEERING STRUCTURES.
151. IRRIGATION ENGINEERING STUDIES.
152. DAMS AND RESERVOIRS FOR IRRIGATION.
160. ADVANCED HYDRAULICS.
161. ADVANCED APPLIED MECHANICS.

CLASSICS

PROFESSORS HELLEMS AND DERHAM, ASSISTANT PROFESSOR WILKINS,
AND MISS CRAIG.

GREEK

6. GREEK HISTORIANS.
Herodotus and Thucydides.

7. PLATO.
Interpretation of the Republic with lectures on Platonism.
8. COMEDY.
Aristophanes, Clouds and Frogs.
9. LYRIC POETS.
Early lyric poets with introduction to Pindar and Bacchylides.
10. PASTORAL POETRY.
Theocritus, Bion, and Moschus.
11. ADVANCED PROSE COMPOSITION.
For Graduates Only.
15. THE TRAGEDIES OF AESCHYLUS.
16. ARISTOTLE, POETICS.
17. HISTORY OF GREEK COMEDY.
18. INTRODUCTION TO GREEK EPIGRAPHY.
19. STUDY OF GREEK DIALECTS FROM INSCRIPTIONS.
20. SEMINAR IN POETS OF ALEXANDRIAN PERIOD.

LATIN

15. LUCRETIVS.
18. MARTIAL.
21. SUETONIUS.
23. ADVANCED LATIN PROSE.
24. GREEK AND ROMAN ARCHÆOLOGY.
25. MINOR LATIN POETS.
A study of the more significant among the minor poets.
For Graduates Only.
26. ROMAN LAW.
(1) Gaii Institutiones Juris Civilis. 3 h.
(2) Elements of Roman Law. 3 h.
27. ROMAN ADMINISTRATION. 3 h.
The development of Roman public institutions in their historical sequence.
28. ROMAN TOPOGRAPHY. 3 h.
The topography of Rome in the historical development of the city.

29. INTERPRETATION OF EARLY LATIN. 3 h.
Selected examples of Early Latin.
30. EPIGRAPHY. 3 h.
Cagnat's Cours d'Epigraphie Latine; Egbert's Introduction; handling of the Corpus Inscriptionum Latinarum.
31. LATIN MORPHOLOGY. 3 h.
The subject will be approached from the comparative side.
32. LATIN SYNTAX. 3 h.
The subject will be treated comparatively.
33. LATIN PALEOGRAPHY. 3 h.
An introduction to the subject.
34. SEMINAR ON TRAJAN.
A study of the sources for the life and reign of Trajan, with particular stress on the epigraphical side.
35. TACITUS. 3 h.
A rapid reading course in the Annals with a consideration of the historical problems raised.
36. PERSIUS. 3 h.
Interpretation of the text; Stoicism in the early Empire.
37. ROMAN PROVINCIAL ADMINISTRATION.
Pliny, Letters, book X; selections from Cicero's correspondence.

EDUCATION

PROFESSORS BARRETT, THOMPSON, AND COLE, AND MISS CURTIS.

- 2.* COMPARATIVE PSYCHOLOGY.
- 3.* ADVANCED PSYCHOLOGY.
- 4.* PATHOLOGICAL PSYCHOLOGY.
- 5.* EXPERIMENTAL PSYCHOLOGY.
- 6.* EDUCATIONAL PSYCHOLOGY.
- 9.* MENTAL TESTS.
6. PUBLIC SCHOOL PROGRAM OF STUDIES.
7. HISTORY AND PHILOSOPHY OF EDUCATION.
8. SECONDARY EDUCATION.

* These numbers refer to courses in the Department of Psychology.

9. PRINCIPLES OF PRE-SCHOOL EDUCATION.
10. ANTHROPOLOGY.
11. ETHNOGRAPHY.
12. ETHNOLOGY.
13. SOCIAL PSYCHOLOGY.
14. EDUCATION AND SOCIETY.
15. SCHOOL SUPERVISION.
16. PRACTICUM IN EDUCATION.
17. SEMINAR IN EDUCATION.

For Graduates Only.

- 12.* ADVANCED EXPERIMENTAL PSYCHOLOGY.

ELECTRICAL ENGINEERING

DEAN EVANS, ASSOCIATE PROFESSOR DuVALL, ASSISTANT PROFESSOR
COOVER, AND MR. McCORMICK AND MR. LINDSAY.

For Graduates Only.

101. THEORY OF ALTERNATING CURRENTS.
102. ANALYSIS AND DESIGN OF ALTERNATING CURRENT APPARATUS.
103. ANALYSIS AND DESIGN OF DIRECT CURRENT APPARATUS.
104. DESIGN OF CENTRAL STATIONS AND EQUIPMENT.
105. STANDARDIZATION LABORATORY AND COMMERCIAL ELECTRICAL TESTING.
106. ELECTRICAL ENGINEERING RESEARCH.
107. TELEPHONES AND TELEGRAPH.
108. ELECTRICAL TRANSMISSION OF POWER.
109. ADVANCED ELECTRIC RAILWAY ENGINEERING.
110. ELECTRO-METALLURGICAL INDUSTRIES.
111. ADVANCED ELECTRICAL ENGINEERING LABORATORY.
112. ILLUMINATING ENGINEERING.

ENGLISH LANGUAGE

PROFESSOR McLUCAS.

- 11-12. ANGLO-SAXON.
13. MIDDLE ENGLISH.

* This number refers to courses in the Department of Psychology.

14. CHAUCER.
15. SHAKESPEARE.
16. PRE-SHAKESPEAREAN DRAMA.
17. PRINCIPLES OF LITERARY CRITICISM.
18. MATTHEW ARNOLD AND OTHER CRITICS.

ENGLISH LITERATURE

PROFESSORS REYNOLDS AND McLUCAS, ASSOCIATE PROFESSOR BIGELOW, AND ASSISTANT PROFESSORS WOLLE AND MCKEEHAN.

9. THE DRAMA.
10. ENGLISH FICTION.
11. THE RENAISSANCE.
12. THE CLASSICAL PERIOD.
13. NINETEENTH CENTURY POETRY.
14. NINETEENTH CENTURY PROSE.
15. SHAKESPEARE.
16. WORDSWORTH AND COLERIDGE.

Primarily for Graduates.

40. LITERARY PROBLEMS. Fall quarter. 3 h.

The methods of historical criticism, illustrated by articles in the learned periodicals, especially on problems connected with Shakespeare. An introduction to graduate work in English.

41. PRE-SHAKESPEAREAN AND ELIZABETHAN DRAMA. Winter and spring quarters. 3 h.

A reading course with lectures and special reports.

GEOLOGY, MINERALOGY, AND GEOGRAPHY

PROFESSORS GEORGE, HENDERSON, AND CRAWFORD, AND ASSOCIATE PROFESSOR WORCESTER.

I. GEOLOGY

4. ECONOMIC GEOLOGY.
5. STRUCTURAL GEOLOGY.
6. OIL GEOLOGY.
7. GEOLOGIC SURVEYING.

8. ADVANCED GEOLOGY.
9. GEOLOGY OF COLORADO.
10. GEOLOGY CULTURE COURSE.
11. PALEONTOLOGY.
12. ADVANCED PALEONTOLOGY.

For Graduates Only.

13. RESEARCH GEOLOGY. One, two, or three quarters.

The work will be chiefly individual, and will depend largely on the preparation of the student. The vicinity of Boulder, and the state as a whole, offer a wide range of problems for research. The credit allowed will depend upon the time given to the work and the character of the results obtained.

NOTE—The establishment of the State Geological Survey gives very exceptional opportunities to a limited number of advanced students in geology.

II. MINERALOGY AND PETROLOGY

3. ADVANCED MINERALOGY.
4. FIRE ASSAYING.
5. ADVANCED CRYSTALLOGRAPHY.
6. OPTICAL MINERALOGY.
7. PETROGRAPHY.

For Graduates Only.

8. PETROLOGY. Throughout the year. 2 or 3 h. each quarter.

An advanced course which includes the microscopic study of rocks from typical districts, reading of petrologic literature, and one weekly period for lectures and reports.

9. CHEMICAL MINERALOGY.

Either quantitative-analytic mineralogy or the investigation of special problems involving laboratory and library research may be undertaken by students who have had adequate preparation.

III. GEOGRAPHY

4. ADVANCED PHYSIOGRAPHY.
5. GEOGRAPHY OF SOUTH AMERICA.
6. GEOGRAPHY OF EUROPE.

For Graduates Only.

7. **PHYSIOGRAPHIC PROBLEMS.** Any quarter. Credit will depend upon the time given to the work and the results obtained. Individual work in the field, laboratory, and library.

GERMANIC LANGUAGES AND LITERATURES

PROFESSOR GRACE VAN SWERINGEN BAUR AND ASSISTANT
PROFESSOR BAUR.

9. **THE GERMAN DRAMA OF THE NINETEENTH CENTURY.**
10. **ADVANCED COMPOSITION.**
12. **GOETHE'S FAUST: PARTS I AND II.**
13. **STUDIES IN THE HISTORY OF THE GERMAN NOVEL.**
14. **THE GERMAN NOVELLE.**
17. **THE HISTORY OF GERMAN LITERATURE FROM THE EARLIEST TIMES TO THE TIME OF KLOPSTOCK.**
18. **THE HISTORY OF GERMAN LITERATURE FROM THE TIME OF KLOPSTOCK TO THE PRESENT.**
19. **GERMANIC HERO-SAGAS.**
20. **GERMANIC MYTHOLOGY.**
22. **POETICS.**
24. **READING AND INTERPRETATION OF SELECTED GERMAN WORKS ON SOCIOLOGY AND PHILOSOPHY.**

For Graduates Only.

25. **DEUTSCHE AUFSATZE.** 2 h.
26. **DEUTSCHE PHONETIK UND AUSSPRACHE.** 2 h.
27. **GOTHIC.** Two quarters. 3 h.
Phonology and inflections of Gothic; relation of Gothic to German and English; reading of extracts in Braune's *Gotische Grammatik*.
28. **OLD HIGH GERMAN.** Three quarters. 3 h.
Braune's *Althochdeutsche Grammatik*, and *Althochdeutsches Lesebuch*.
29. **MIDDLE HIGH GERMAN.** Three quarters. 2 h.
Paul's *Mittelhochdeutsche Grammatik*; reading of Hartman von Aue's *Der Arme Heinrich*.

30. OLD ICELANDIC. Three quarters. 3 h.

Phonology and inflection of Old Icelandic, from Noreen's *Altislandische and Altnorwegische Grammatik*. Reading of Heusler's *Zwei Islander-Geschichten*.

31. THE EDDA. Three quarters. 3 h.

Gering's Edition of Hildebrand's *Edda Lieder*.

32. EINFÜHRUNG IN DAS STUDIUM DER GERMANISCHEN SPRACHEN.
Two quarters. 3 h.

33. GOETHE SEMINAR. Two quarters. 2 h.

HISTORY

PROFESSOR WILLARD, ASSOCIATE PROFESSORS ECKHARDT AND SWEET,
AND ASSISTANT PROFESSOR GOODYKOONTZ.

Open to Graduates on Consultation.

11. THE POLITICAL THEORIES OF PLATO AND ARISTOTLE.
12. THE FALL OF THE ROMAN REPUBLIC.
13. THE ROMAN EMPIRE.
14. THE MEDIEVAL CHURCH AND THE REFORMATION.
15. ENGLISH MEDIEVAL INSTITUTIONS.
16. THE ITALIAN RENAISSANCE.
19. ADVANCED MODERN EUROPEAN HISTORY.
20. THE RENAISSANCE AND REFORMATION.
21. THE MIDDLE AGE.
23. CONSTITUTIONAL HISTORY OF THE UNITED STATES.
24. THE WESTWARD MOVEMENT.
25. COLONIZATION OF NORTH AMERICA.
26. FOREIGN RELATIONS OF THE UNITED STATES.
27. RESEARCH COURSE IN THE HISTORY OF THE WEST.
29. HISTORIOGRAPHY.

LAW

PROFESSOR FLEMING.

CONSTITUTIONAL LAW. 7 h.

IRRIGATION. 3 h.

MINING LAW. 4 h.

SALES OF PERSONAL PROPERTY. 4 h.

PROFESSOR ARTHUR.

PROPERTY. 8 h.

WILLS. 4 h.

MORTGAGES. 3 h.

PROFESSOR HADLEY.

PRIVATE AND MUNICIPAL CORPORATIONS. 8 h.

PUBLIC UTILITIES. 3 h.

ASSISTANT PROFESSOR SMITH.

BILLS AND NOTES. 4h.

MATHEMATICS

PROFESSOR DeLONG AND ASSOCIATE PROFESSOR LIGHT.

5. DIFFERENTIAL AND INTEGRAL CALCULUS. As a minor to majors in Science.
14. THEORY OF INVESTMENT. As a minor to majors in Economics.
6. DIFFERENTIAL EQUATIONS.
10. ANALYTIC SOLID GEOMETRY.
11. MODERN GEOMETRY.
7. LIE THEORY OF DIFFERENTIAL EQUATIONS.
16. COMPLEX FUNCTIONS, PROJECTIVE GEOMETRY, AND TRANSCENDENTAL FUNCTIONS.

For Graduates Only.

17. HIGHER PLANE CURVES.
18. ALGEBRAIC CURVES.
19. THEORY OF INVARIANTS.
20. DIFFERENTIAL GEOMETRY.
21. LEAST SQUARES.
22. MATHEMATICAL THEORY OF STATISTICS.
23. CALCULUS OF VARIATIONS.
24. CELESTIAL MECHANICS.
25. PERIODIC ORBITS.
26. PARTIAL DIFFERENTIAL EQUATIONS.
27. POTENTIAL THEORY.
28. THEORY OF DETERMINANTS.
29. SERIES.
30. THEORY OF EQUATIONS.
31. INTRINSIC GEOMETRY.

MECHANICAL ENGINEERING

PROFESSOR HUNTER, ASSOCIATE PROFESSORS BAUER AND SIMMERING,
AND ASSISTANT PROFESSOR MALLORY.

For Graduates Only.

101. ADVANCED MACHINE DESIGN.
102. GRAPHICS AND KINEMATICS.
103. ADVANCED STEAM ENGINEERING.
104. EXPERIMENTAL ENGINEERING.
105. PNEUMATICS.
106. RAILWAY MECHANICAL ENGINEERING.
107. MECHANICAL REFRIGERATION.
108. ADVANCED GAS ENGINES.

MUSIC

PROFESSOR CHACE.

3. COUNTERPOINT.
4. CANON AND FUGUE.
5. COMPOSITION AND ORCHESTRATION.
6. HISTORY OF MUSIC.
7. AESTHETICS AND PHILOSOPHY OF MUSIC.
8. APPRECIATION OF MUSIC.

OPHTHALMOLOGY*

For Graduates Only.

1. SPECIAL ANATOMY AND HISTOLOGY, EMBRYOLOGY AND ANOMALIES
OF THE EYE.
2. PATHOLOGY, SYSTEMATIC AND LABORATORY.
3. PHYSIOLOGICAL OPTICS, REFRACTION, AND OCULAR MOVEMENTS.
4. METHODS OF OPHTHALMIC DIAGNOSIS, OPHTHALMOSCOPIC DIAG-
NOSIS.
5. DAILY UNIVERSITY EYE CLINIC.
6. SPECIAL LECTURES ON RELATIONS OF EYE DISEASES TO GENERAL
MEDICINE AND SURGERY.
7. ADVANCED OPTICS.
8. ADVANCED COURSE IN OPHTHALMOLOGY.

* For description of courses see special bulletin of the Department of Ophthalmology.

PHILOSOPHY

PROFESSOR LIBBY AND ASSISTANT PROFESSOR ANDERSON.

All candidates must get from the Department of Philosophy a written statement of specific requirements at the beginning of each year. The thesis-subject may be chosen from any branch of philosophy.

For A.M.

For major, high grades in undergraduate courses and advanced readings in sources of Philosophy, and in Metaphysics; for minor, a thorough knowledge of the history of Philosophy.

For Ph.D.

For major, courses for A.M. major, with further advances in history of Philosophy and in special disciplines. Candidates must be able to read German and French at sight. For minor, advanced history of Philosophy, including special knowledge of two philosophers.

PHYSICS

PROFESSORS LESTER AND WOODROW, AND ASSOCIATE
PROFESSOR PIETENPOL.

For Advanced Undergraduates and Graduates.

3. ANALYTICAL MECHANICS—STATICS.
4. ANALYTICAL MECHANICS—DYNAMICS.
6. THEORY OF ELECTRICITY AND MAGNETISM I.
7. THEORY OF ELECTRICITY AND MAGNETISM II.
8. ELECTRICAL MEASUREMENTS I.
10. PROPERTIES OF MATTER. (Not given 1921-1922.)
18. VECTOR ANALYSIS. (Not given 1921-1922.)
42. INTRODUCTION TO MATHEMATICAL ASTRONOMY.

Primarily for Graduates.

100. KINETIC THEORY OF GASES. Winter quarter. 3 h. Lectures and recitations.

The important physical properties of gases will be considered from the viewpoint of the kinetic theory of matter.

Prerequisites: Courses 4, 11, and calculus; Course 6 advised.

101. CONDUCTION OF ELECTRICITY THROUGH GASES. Winter quarter.
4 h. (Not given 1921-1922.)

Lectures and recitations.

A course dealing with the properties of ions and electrons in their relation to the passage of electricity through gaseous media.

Prerequisites: Courses 4, 6, 7, and calculus.

102. ADVANCED ANALYTICAL MECHANICS. Winter and spring quarters.
3 h.

Prerequisites: Courses 3, 4, calculus, and differential equations.

103. RADIOACTIVITY. Autumn quarter. 3 h. (Not given 1921-1922.)

Prerequisites: Courses 1, 2, 6, 101, and calculus.

104. MEASUREMENTS IN RADIOACTIVITY. Winter quarter. Two three-hour laboratory periods. 2 h. (Not given 1921-1922.)

105. ELECTRON THEORY. Winter and spring quarters. 3 h.

A course of lectures and reading dealing with the evidence which has led to the discovery of the electron, and to the idea of the corpuscular structure of matter. The role played by these ideas in modern physics will be considered at length.

Prerequisite: Permission of the instructor.

106. ADVANCED MATHEMATICAL PHYSICS. Three quarters. Hours and credit to be arranged.

A course dealing with certain phases of theoretical physics, involving not only a somewhat extensive knowledge of physics, but also considerable mathematical equipment.

Prerequisite: Permission of the instructor.

107. RESEARCH AND JOURNAL CLUB. An organization composed of all instructors, graduate and advanced undergraduate students in the departments of physics and chemistry, meeting once a week from 4:00 to 6:00 for the discussion of recent research.

PSYCHOLOGY

PROFESSORS COLE AND THOMPSON, AND ASSOCIATE PROFESSOR
GILLASPIE.

2. COMPARATIVE PSYCHOLOGY.
3. ADVANCED PSYCHOLOGY.

4. PATHOLOGICAL PSYCHOLOGY.
5. EXPERIMENTAL PSYCHOLOGY.
6. EDUCATIONAL PSYCHOLOGY.
7. THE PSYCHOLOGY OF GRAMMAR SCHOOL AND HIGH SCHOOL SUBJECTS.
10. SOCIAL PSYCHOLOGY. (EDUCATION 13).
11. ANATOMY OF THE CENTRAL NERVOUS SYSTEM.

For Graduates Only.

12. ADVANCED EXPERIMENTAL PSYCHOLOGY.

Students in this course will be expected to carry on systematic investigations in special problems.

ROMANCE LANGUAGES

PROFESSOR AYER AND ASSISTANT PROFESSOR PLACE.

FRENCH

For Graduates and Advanced Undergraduates.

4. SEVENTEENTH CENTURY FRENCH.* Autumn quarter. 3 h.
5. SEVENTEENTH CENTURY FRENCH.* Winter quarter. 3 h.
6. SEVENTEENTH CENTURY FRENCH.* Spring quarter. 3 h.
7. EIGHTEENTH CENTURY FRENCH.* Autumn quarter. 3 h. (Not given in 1921-1922.)
8. EIGHTEENTH CENTURY FRENCH.* Winter quarter. 3 h. (Not given in 1921-1922.)
9. EIGHTEENTH CENTURY FRENCH.* Spring quarter. 3 h. (Not given in 1921-1922.)
10. NINETEENTH CENTURY FRENCH.* Autumn quarter. 3 h.
11. NINETEENTH CENTURY FRENCH.* Winter quarter. 3 h.
12. NINETEENTH CENTURY FRENCH.* Spring quarter. 3 h.
13. SIXTEENTH CENTURY FRENCH.* Autumn quarter. 3 h. (Not given in 1921-1922.)
14. THE ORIGINS AND DEVELOPMENT OF THE FRENCH DRAMA UP TO THE PRESENT TIME.* Winter quarter. 2 h.
15. THE ORIGIN AND DEVELOPMENT OF THE NOVEL IN FRANCE.* Spring quarter. 2 h.

* Given in alternate years.

Primarily for Graduates.

16. OLD FRENCH. Three quarters. 3 h. Usually given in alternate years. (Not given in 1921-1922.)

Phonology, morphology, and literature to the fourteenth century.

17. MIDDLE FRENCH. Three quarters. 2 h. (Not given in 1921-1922.)

A study of the language and the literature of the fourteenth and fifteenth centuries. Special attention is given to the Cent Ballads and to Francois Villon.

18. HISTORICAL FRENCH SYNTAX. Three quarters. 2 h. (Not given in 1921-1922.)

A research course dealing with special problems in French syntax. A considerable amount of reading is required, together with a term-paper.

SPANISH

For Graduates and Advanced Undergraduates.

4. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Autumn quarter. 3 h.
5. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Winter quarter. 3 h.
6. SPANISH LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES.* Spring quarter. 3 h.
7. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Autumn quarter. 3 h. (Not given in 1921-1922.)
8. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Winter quarter. 3 h. (Not given in 1921-1922.)
9. SPANISH LITERATURE OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.* Spring quarter. 3 h. (Not given in 1921-1922.)

Primarily for Graduates.

11. OLD SPANISH. Three quarters. 3 h. Usually given in alternate years.

Phonology, morphology, and literature to the fifteenth century.

* Given in alternate years.

ITALIAN

For Graduates and Advanced Undergraduates.

2. DANTE. Three quarters. 3 h. Usually given in alternate years.
(Not given in 1921-1922.)

The Divine Comedy, the minor works, Dante's life and times.

- 3-5. GENERAL VIEW OF ITALIAN LITERATURE. Three quarters. 3 h.
Usually given in alternate years. (Not given in 1921-1922.)

For Graduates Only.

6. OLD ITALIAN. 2 h. (Not given in 1921-1922.)

Comparative Romance philology with special reference to Italian. Monaci's *Crestomazia dei primi secoli*.

7. COMPARATIVE ROMANCE SYNTAX. 3 h. Usually given in alternate years.

Comparative Romance syntax with special reference to Italian.

8. Cf. Course 12 under *Spanish*.

PORTUGUESE

For Graduates Only.

1. PORTUGUESE. Three quarters. 2 h. Usually given in alternate years. (Not given in 1921-1922.)

Language and literature. R. Foulche-Delbosc, *Grammaire Portugaise*. A. Bell, *Studies in Portuguese Literature*. A quick course in grammar with much sight reading.

Prerequisites: French, Spanish, Italian.

PROVENÇAL

For Graduates Only.

1. OLD PROVENÇAL. Three quarters. 3 h. Usually given in alternate years. (Not given in 1921-1922.)

Phonology, morphology, and literature.

SOCIAL SCIENCE

PROFESSORS BUSHEE AND LIEN, AND MR. INGRAHAM.

I. ECONOMICS

8. STATISTICS.

9. LABOR PROBLEMS.

11. MONEY AND BANKING.

12. TRANSPORTATION.
13. TAXATION.
14. CORPORATIONS.
15. LIFE INSURANCE.
17. TRUSTS.
18. BUSINESS ORGANIZATION AND SCIENTIFIC MANAGEMENT.

For Graduates Only.

21. HISTORY AND CRITICISM OF ECONOMIC THEORIES. Autumn quarter. 2 h.

Lectures, reading, reports.

The lectures will deal with the economic ideas of Plato and Aristotle; the influence of the Roman Law; the Canonists; Mercantilists; Physiocrats; Adam Smith; Ricardo; Malthus; John Stuart Mill; the Historical School; Jevons and the Austrian School. The aim is not only to study the content of economic theory, but also to exhibit theory in the light of political and social conditions.

22. SEMINAR IN ECONOMICS. Three quarters. 2 h.

II. SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY.
2. PROBLEMS IN SOCIOLOGY.
3. SOCIALISM.
5. ADVANCED THEORY OF SOCIOLOGY.

For Graduates Only.

7. SEMINAR IN SOCIOLOGY. Three quarters. 2 h.

III. POLITICAL SCIENCE

3. MUNICIPAL GOVERNMENT AND PROBLEMS.
4. POLITICAL PARTIES AND PARTY PROBLEMS.
5. INTERNATIONAL LAW AND RELATIONS.
6. PRINCIPLES OF POLITICAL SCIENCE.
7. CONTEMPORARY POLITICAL DOCTRINES AND IDEALS.
8. THE GOVERNMENT OF COLORADO.
9. PROBLEMS IN AMERICAN GOVERNMENT.
11. PRINCIPLES OF CONSTITUTIONAL LAW.

For Graduates Only.

12. SEMINAR IN POLITICAL SCIENCE.

SCHOOL OF MEDICINE

FACULTY*

- GEORGE NORLIN, Ph.D., LL.D., President of the University.
CHARLES N. MEADER, A.B., M.D., Dean; Professor of Medicine and
Head of Department.
WILLIAM P. HARLOW, A.B., M.D., Dean, Emeritus.
ROSS C. WHITMAN, A.B., M.D., Secretary of the Boulder Division;
Professor of Pathology.
LUMAN M. GIFFIN, M.D., Professor of Surgery, Emeritus.
WILLIAM B. CRAIG, M.D., Professor of Surgery, Emeritus.
E. BARBER QUEAL, M.D., Professor of Physiology, Emeritus.
CHARLES S. ELDER, M.D., Professor of Surgery, Emeritus.
NEWTON WIEST, M.D., Professor of Dermatology, Emeritus.
JAMES R. ARNEILL, A.B., M.D., Professor of Medicine, Emeritus.
JOHN M. FOSTER, M.D., Professor of Oto-laryngology, Emeritus.
HENRY SEWALL, Ph.D., M.D., Sc.D., Professor of Medicine, Emeritus.
EDMUND J. A. ROGERS, A.M., M.D., Professor of Surgery, Emeritus.
THOMAS H. HAWKINS, A.M., M.D., LL.D., Professor of Surgery,
Emeritus.
WILLIAM H. DAVIS, M.D., Professor of Dermatology, Emeritus.
WILLIAM J. ROTHWELL, M.D., Professor of Medicine, Emeritus.
FRANCIS H. MCNAUGHT, M.D., Professor of Obstetrics, Emeritus.
CHARLES A. POWERS, A.M., M.D., Professor of Surgery, Emeritus.
HERBERT B. WHITNEY, A.B., M.D., Professor of Medicine, Emeritus.
SHERMAN G. BONNEY, A.M., M.D., Professor of Medicine, Emeritus.
GEORGE B. PACKARD, M.D., Professor of Orthopedics, Emeritus.
T. MITCHELL BURNS, M.D., Professor of Obstetrics, Emeritus.
WALTER A. JAYNE, M.D., Professor of Gynecology, Emeritus.
CHARLES B. VAN ZANT, M.D., Professor of Physiology, Emeritus.
WILLIAM C. MITCHELL, M.D., Professor of Bacteriology, Emeritus.
DAVID H. COOVER, M.D., Professor of Ophthalmology, Emeritus.
JOSIAH N. HALL, B.S., M.D., Professor of Medicine, Emeritus.

* Faculty members in the several grades are arranged in the order of their appointment.

- CHARLES B. LYMAN, M.D., Professor of Clinical Surgery.
EDWARD JACKSON, A.M., M.D., Sc.D., Professor of Ophthalmology.
GEORGE E. NEUHAUS, M.D., Professor of Neurology and Psychiatry.
ROBERT LEVY, M.D., Professor of Oto-laryngology.
LEONARD FREEMAN, B.S., A.M., M.D., Professor of Surgery.
JAMES C. TODD, Ph.B., M.D., Professor of Clinical Pathology.
ARTHUR J. MARKLEY, D.D.S., M.D., Professor of Dermatology.
ROBERT C. LEWIS, Ph.D., Director of Henry S. Denison* Research Laboratory; Professor of Biochemistry.
CLARENCE B. INGRAHAM, Ph.B., M.D., Professor of Obstetrics and Gynecology.
*CHARLES M. GRUBER, Ph.D., Professor of Physiology and Pharmacology.
IVAN E. WALLIN, Sc.D., Professor of Anatomy.
OSCAR M. GILBERT, M.D., Associate Professor of Medicine.
†HOWELL T. PERSHING, M.S., M.D., LL.D., Associate Professor of Psychiatry.
MOSES KLEINER, M.D., Associate Professor of Therapeutics.
MELVILLE BLACK, M.D., Associate Professor of Ophthalmology.
SAMUEL B. CHILDS, A.B., M.D., Associate Professor of Roentgenology.
WILLIAM C. BANE, M.D., Associate Professor of Oto-laryngology.
OLIVER LYONS, M.D., Associate Professor of Genito-Urinary Surgery.
SAMUEL FOSDICK JONES, M.D., Associate Professor of Orthopedic Surgery.
FRANK P. GENGEBACH, M.D., Associate Professor of Pediatrics.
CARBON GILLASPIE, M.D., Associate Professor of Anatomy.
FROST C. BUCHEL, M.D., Assistant Professor of Surgery.
EDWARD F. DEAN, M.D., Assistant Professor of Clinical Surgery.
AUBREY H. WILLIAMS, M.D., Assistant Professor of Clinical Surgery.
*GEORGE H. CATTERMOLLE, M.D., Assistant Professor of Pediatrics.
EDWARD DELEHANTY, M.D., Assistant Professor of Neurology.
CLAUDE EDWARD COOPER, A.B., M.D., Assistant Professor of Oto-laryngology.
RUDOLPH W. ARNDT, M.D., Assistant Professor of Medicine.
GEORGE A. MOLEEN, M.D., Assistant Professor of Neurology.
JOHN B. DAVIS, M.D., Assistant Professor of Genito-Urinary Surgery.

* On leave of absence, 1920-1921.

† Resigned July 15, 1920.

EDWARD R. MUGRAGE, A.M., M.D., Director of Laboratories (Denver);
Assistant Professor of Pathology.

HUGH M. KINGERY, Ph.D., Assistant Professor of Anatomy.

SEVERANCE BURRAGE, B.S., D.P.H., Ph.D., Assistant Professor of
Bacteriology.

OTTO S. KRETSCHMER, A.M., M.D., Assistant Professor of Physiology
and Pharmacology.

CLOUGH T. BURNETT, M.D., Assistant Professor of Medicine.

WILLARD J. WHITE, A.M., M.D., Lecturer on Medical Jurisprudence.

JAMES H. PERSHING, A.B., Lecturer on Medical Jurisprudence.

ARTHUR H. EARLEY, M.D., Lecturer on Rectal Surgery.

ORA S. FOWLER, B.S., M.D., Lecturer on Local Anaesthetics.

WILLIAM C. FINNOFF, M.D., D.Oph., Lecturer on Ophthalmology.

FRANK R. SPENCER, A.B., M.D., Instructor in Oto-laryngology.

CLAY E. GIFFIN, A.B., M.D., Instructor in Surgery.

HENRY WILLIAMS WILCOX M.D., Instructor in Orthopedic Surgery.

CYRUS L. PERSHING, B.S., M.D., Instructor in Neurology.

ROBERT L. CHARLES, M.D., Instructor in Anaesthesia.

WILLIAM H. CRISP, M.D., D.Oph., Instructor in Ophthalmology.

WILLIAM WILEY JONES, A.B., M.D., Instructor in Medicine.

GEORGE P. LINGENFELTER, M.D., Instructor in Dermatology and
Syphilis.

JOHN MURRAY BARNEY, M.D., Instructor in Medicine.

CASPER F. HEGNER, M.D., Instructor in Surgery.

OSCAR M. SHERE, M.D., Instructor in Surgery.

CUTHBERT POWELL, M.D., Instructor in Gynecology.

FOSTER H. CARY, M.D., Instructor in Obstetrics.

†CHARLES A. FERRIS, M.D., Instructor in Obstetrics.

HARRY L. BAUM, M.D., Instructor in Oto-laryngology.

TRACY R. LOVE, Ph.B., M.D., Instructor in Dietetics.

JOHN A. MCCAW, M. D., D.Oph., Instructor in Ophthalmology.

WILLIAM A. SEDWICK, M.D., Instructor in Ophthalmology.

HIRAM R. STILWILL, M.D., Instructor in Ophthalmology.

*FRANK C. KENNELLEY, M.D., Assistant in Medicine.

ELMERT T. BOYD, M.D., Assistant in Ophthalmology.

WILLIAM M. BANE, M.D., Assistant in Oto-laryngology.

JAMES M. SHIELDS, M.D., Assistant in Ophthalmology.

* Died December 5, 1921.

† Died February 1, 1921.

TEACHING STAFF AT COUNTY HOSPITAL

MEDICINE:

Chief—C. N. Meader.

Attending Physicians—J. M. Barney, C. T. Burnett, R. T. Ramsey.

Associates—A. L. Beaghler, J. C. Weld, T. R. Love, J. L. Mortimer.

SURGERY:

Chiefs—C. B. Lyman, L. Freeman.

Attending Surgeons—E. F. Dean, O. M. Shere, A. H. Williams, A. C. Craig.

Associates—C. D. McKenzie, Frank Rogers, H. G. Garwood, G. B. Packard, Jr.

Associate in Rectal Surgery—A. H. Early.

TUBERCULOSIS:

Chief—J. Gelien.

Attending Physicians—H. H. Champlin, A. Minnig.

PEDIATRICS:

Chief—F. P. Gengenbach.

Attending Physicians—J. W. Amesse, E. Friedman, E. C. Kennelley, L. C. Wollenweber.

GENITO-URINARY DISEASES:

Chief—Oliver Lyons.

Attending Surgeon—J. B. Davis.

Associates—J. A. Philpott, R. G. Smith.

ORTHOPEDIC SURGERY:

Chief—S. F. Jones.

Attending Surgeons—C. M. Spicer, R. G. Packard, H. W. Wilcox.

OBSTETRICS AND GYNECOLOGY:

Chief—C. B. Ingraham.

Associate Chief—F. H. Cary.

Attending Surgeons—C. A. Ferris, H. G. Macomber, C. N. Needham, C. Powell, W. W. Halley.

NEUROLOGY:

Chief—G. E. Neuhaus.

Attending Physicians—E. Delehanty, G. A. Moleen, C. L. Pershing, L. Tepley, C. S. Bluemel.

OPHTHALMOLOGY:

Chief—J. A. McCaw.

Attending Surgeons—W. C. Finnoff, H. R. Stilwill, J. M. Shields.

OTO-LARYNGOLOGY:

Chief—R. Levy.

Attending Surgeons—W. M. Bane, H. L. Baum, C. E. Cooper, S. B. Eichberg.

DERMATOLOGY:

Chief—A. J. Markley.

Attending Physicians—W. H. Davis, G. P. Lingenfelter.

PATHOLOGY: E. R. Mugrage.

CLINICAL STAFF OF THE UNIVERSITY HOSPITAL, BOULDER

MEDICINE: O. M. Gilbert; **SURGERY:** C. E. Griffin; **OBSTETRICS AND GYNECOLOGY:** W. W. Reed; **EYE, EAR, NOSE, AND THROAT:** F. R. Spencer; **ANÆSTHETIST:** M. E. Miles; **ROENTGENOLOGIST:** C. E. Giffin; **BIOCHEMIST:** R. C. Lewis; **CLINICAL PATHOLOGIST:** J. C. Todd; **PATHOLOGIST:** R. C. Whitman.

CLINICAL STAFF OF THE DISPENSARY

MEDICINE: R. T. Ramsey, Chief; A. L. Beaghler, H. H. Champ-
lin, B. C. Dorset, W. A. Epstein, E. G. Faber, L. W. Frank, H. G.
Macomber, J. L. Mortimer, J. C. Weld.

PEDIATRICS: Frank P. Gengenbach, Chief; B. C. Dorset, R. P.
Forbes, E. Friedman, F. C. Kennelley, H. G. Macomber, E. S. Pratt,
J. B. Walton, L. C. Wollenweber, W. W. Jones.

TUBERCULOSIS: J. Gelien, Chief; A. Minnig, M. M. George.

SURGERY: O. M. Shere, Chief; H. G. Garwood, C. D. McKenzie,
G. B. Packard, Jr., Frank Rogers, L. G. Weldon, Ross W. Johnson.

GENITO-URINARY SURGERY: O. Lyons, J. B. Davis, J. A. Philpott,
R. G. Smith.

ORTHOPEDICS: R. G. Packard, C. M. Spicer, H. W. Wilcox.

NEUROLOGY AND PSYCHIATRY: G. E. Neuhaus, Chief; C. S. Blue-
mel, E. Delehanty, G. A. Moleen, C. L. Pershing, L. Tepley.

GYNECOLOGY: W. A. Jayne, Chief; W. J. Bingham, F. H. Cary,
C. A. Ferris, M. E. V. Fraser, Elizabeth M. Moyer, G. B. Packard, Jr.,
E. W. Perrott, Sara C. Wilcox.

OBSTETRICAL OUTSERVICE: F. H. Cary, Chief; W. J. Bingham, W.
A. Epstein, R. W. Johnson, A. R. Lannon, G. B. Lewis, H. G. Macom-
ber, P. A. Murphy, R. Schachet, E. E. Taylor, J. B. Walton, S. C.
Wilcox.

OPHTHALMOLOGY: H. Aufmwasser, E. T. Boyd, W. H. Crisp,
C. O. Eigler, W. C. Finnoff, J. A. McCaw, W. A. Sedwick, H. R.
Stilwill.

OTO-LARYNGOLOGY: W. C. Bane, W. M. Bane, H. L. Baum, C. E.
Cooper, S. B. Eichberg, F. R. Spencer, Mary R. Stratton.

DERMATOLOGY AND SYPHILIS: A. J. Markley, Chief; G. P. Lingen-
felter.

GENERAL STATEMENT

HISTORICAL NOTE

The University of Colorado School of Medicine was opened in September, 1883. On January 1, 1911, the Denver and Gross College of Medicine was united with this School, the two faculties being combined into one. The single school thus formed is an integral part of the University of Colorado. At the same time the third and fourth-year classes were transferred to Denver, where greatly enlarged clinical facilities are available. The Denver and Gross College of Medicine was the union June 19, 1902, of the Denver College of Medicine, a department of the University of Denver, and the Gross Medical College. The former College was opened November, 1881, and the latter in 1887. The School is a member of the Association of American Medical Colleges.

The first two years constitute the Boulder Division of the School, and the last two years, the Denver Division.

ORGANIZATION

The work of the School is divided among thirteen departments, each in charge of a professor who is Head of the Department, and containing in addition an appropriate number of associate and assistant professors, lecturers, instructors, assistants and members of the Hospital and Dispensary Staffs. The Heads of Departments with the Dean constitute the Executive Faculty, having jurisdiction under the President and Board of Regents of the University.

EQUIPMENT

The first two years are given at Boulder in the Medical Building on the University Campus, where the University Hospital affords facilities for such clinical instruction as is given during the latter part of the second year. The last two years are given in Denver, where the Medical Building houses the dispensary and lecture rooms.

Operative and bedside clinics and clinical conferences are held daily at the Denver City and County Hospital, 250 beds. The Hos-

pital clinics are so arranged that small groups of students have an opportunity to study and observe the cases intimately, under the direction of the proper members of the faculty. The School also maintains a dispensary where daily clinics are attended by small groups of students in Medicine; Pediatrics; Neurology; Tuberculosis; Surgery; Gynecology; Orthopedics; Eye, Ear, Nose, and Throat; Dermatology and Genito-Urinary Surgery; and the Clinical Laboratory. There are more than 20,000 visits yearly to the Dispensary. In addition to these, clinics are held for small groups of students at St. Joseph's Hospital, 200 beds, and the Steele (Contagious) Hospital. Clinical facilities are also provided at the Children's Hospital.

There is abundant material for teaching obstetrics, each member of the senior class being required to attend a minimum of six cases, in addition to seeing cases delivered by members of the faculty. Students who desire to do so may attend a much larger number of cases.

Library facilities in Boulder are afforded by the University Library, supplemented by the Denison Library. In Denver, students have free access to the Library of the Medical Society of the City and County of Denver, containing 16,500 bound volumes and 210 current journals.

THE HENRY S. DENISON RESEARCH LABORATORIES

The Henry S. Denison Research Laboratories, together with the Denison Memorial Building, are the gift of Mrs. Ella Strong Denison in memory of her son, Dr. Henry S. Denison, who was a member of the Medical Faculty. The west wing of the building is now completed. It contains special rooms and equipment for research and advanced work in chemistry, physiology, pathology, bacteriology, and clinical medicine, together with the necessary accessory rooms, such as library, cold room, incubator room, operating and sterilizing rooms, dark room, etc. To all who have the necessary educational prerequisites, opportunity is here offered for special work and research.

REVENUES

The revenues of the School are appropriated under a budget system from the general funds of the University. Student fees contribute a small proportion of the total budget.

REQUIREMENTS FOR ADMISSION

See page 31.

SPECIAL STUDENTS

See page 32.

ADVANCED STANDING

Candidates from a medical college on the accepted list must present to the Registrar of the University at the time of matriculation satisfactory credentials showing that the entrance requirements enforced for students of the class to which entrance is sought have been complied with, and that all the work in which advanced credit is sought has been completed. Students from schools rated in grade "B" are admitted only after passing examinations. Students from schools rated in class "C" are not eligible to advanced standing.

Applicants for advanced standing who have not attended a medical school during the preceding five years must stand examinations in the subjects in which credit is sought.

COURSES LEADING TO TWO DEGREES

A seven-year course leading to the degrees of A.B. and M.D. is offered. The student pursues the regular work of the College of Arts and Sciences for three years and then begins his medical studies. The A.B. degree is conferred upon the completion of the first year of Medicine.

REQUIREMENTS FOR A DEGREE

Every candidate for the degree of Doctor of Medicine must be twenty-one years of age, possess a good moral character, and be of temperate habits. He must have passed satisfactory examinations in all the required studies included in the full course of instruction. He must have attended regularly four full courses of lectures of not less than thirty-two weeks each, in some accredited medical college. No two of such courses shall have been taken in the same year. The last course must be taken in this School. An allowance for absence will be made for no other cause than the illness of the student or of his immediate family, and such absence from any course must not exceed twenty per centum of the scheduled hours.

FEES

For fees, see pages 36, 38.

SCHOLARSHIPS AND LOAN FUNDS

THE EDWARD G. STOIBER SCHOLARSHIP

See page 40.

THE PHIPPS LOAN FUND

See page 42.

DESCRIPTION OF COURSES*

The following courses constitute the medical curriculum of the first and second years: Anatomy, courses 1, 2, and 3; Biochemistry, courses 3 and 4; Physiology and Pharmacology, courses 1 and 2; Pathology, courses 1, 2, and 3; Clinical Pathology, course 1; Principles of Medicine; and Principles of Surgery.

Of the above, the following may also be taken in the summer quarter: Anatomy, course 1, in whole or in part; Biochemistry, courses 3 and 4; Pathology, courses 1, 3, and 7; Clinical Pathology, course 1.

ANATOMY

1. GROSS ANATOMY. Autumn and winter quarters. 400 h.

The course consists in dissection supplemented by lectures and conferences. The aim of this course is to give the student an opportunity to gain a comprehensive knowledge of the morphology and structure of the human body. The student is required to make a satisfactory dissection of one lateral half of the body.

The following are the courses required:

Course I. The Upper Extremity.

Course II. The Head and Neck (including the Brain).

Course III. The Thorax.

Course IV. The Abdomen and Pelvis.

Course V. The Lower Extremity.

Professor Wallin.

2. MICROSCOPIC ANATOMY. Autumn and winter quarters. 312 h.
Lectures, recitations, and laboratory exercises.

A combined course in general embryology, histology, histogenesis, organogenesis.

At the beginning of the course a few periods are devoted to histological technique in order that the student may better appreciate the character of the material with which he will later be working.

* The hours indicated after each course are the total time devoted to the course.

The laboratory work consists of a study of frog, chick, pig, rat, and human embryos, special demonstrations and models illustrating histogenesis and organogenesis, and normal adult tissues.

Assistant Professor Kingery.

3. NEURO-ANATOMY. Winter quarter. 120 h.

Lectures, recitations, and laboratory exercises.

The gross and microscopic structure of the central nervous system and sense organs.

Assistant Professor Kingery.

4. TOPOGRAPHIC AND APPLIED ANATOMY. Spring quarter. 143 h.

A study of the relations and topography of the parts of the body, followed by a consideration of the important facts of regional anatomy as applied to the practice of medicine and surgery. The laboratory exercises consist in a study of serial cross-sections and special preparations, including stereoscopic roentgenograms.

Associate Professor Gillaspie.

5. ANATOMY FOR TEACHERS OF PHYSIOLOGY. Summer quarter. Primarily for teachers of physiology in grade and high schools. 25 h.

Lectures and demonstrations.

Stereoscopic lantern slides are used to illustrate the anatomy of the human body.

Professor Wallin.

6. ANATOMY FOR NURSES. Autumn quarter. 36 h.

Lectures and demonstrations.

The gross and microscopic structure of the human body.

Associate Professor Gillaspie.

7. NEURO-ANATOMY (BRIEF COURSE). Winter quarter. 44 h. Primarily for students of psychology.

Lectures, demonstrations, and laboratory exercises.

The structure and function of the central nervous system.

Associate Professor Gillaspie.

ORIGINAL INVESTIGATION.

Students are encouraged to do original investigation. The facilities of the department are open to a limited number of

students for this type of work. Larger anatomical works and a number of foreign journals are being added to the Anatomical Library yearly. The Surgeon General's Library is also available for use in the department.

BIOCHEMISTRY

1. MEDICAL BIOCHEMISTRY. Winter quarter. Lectures, two a week; laboratory, 6 hours a week. 88 h. 4 hours' credit. Spring quarter. Lectures, five a week; laboratory 9 hours a week. 154 h. 8 hours' credit.

Required of first year medical students, but open to advanced students of chemistry who have shown particular proficiency in their chemical work.

Physical chemistry of the protoplasm; chemistry of carbohydrates, lipins, and proteins; of digestion, metabolism, and excretion. Considerable time is devoted to the practical qualitative and quantitative methods of analysis of stomach contents, urine, and blood (including work with the newer methods of blood chemical analysis) and to practical work in metabolism.

Prerequisite: Organic Chemistry with laboratory.

Professor Lewis and Assistant.

2. COLLEGE BIOCHEMISTRY. Spring quarter. Lectures, 3 h; laboratory, 6 hours a week. 90 h. 5 hours' credit. Primarily for those taking the combined College and Hospital Course for the B. S. degree or the course in Home Economics, but open to other properly qualified students.

Chemistry of the carbohydrates, lipins, proteins, and tissues; of digestion, metabolism, and excretion.

Prerequisite: Organic Chemistry.

Professor Lewis.

3. CHEMISTRY FOR NURSES. Spring quarter. 30 h. For the nurses of the University Training School.

Lectures and demonstrations.

An introduction to the fundamentals of inorganic and organic chemistry and a more detailed study of the chemistry and physiology of digestion, metabolism, and excretion.

Professor Lewis.

The following courses are open only to graduate and other specially qualified students:

4. CHEMISTRY OF BLOOD. Any quarter. Time to be arranged.

The student is required to read and abstract the original articles on methods for the chemical analysis of blood and to make practical application of the newer methods in the laboratory. Pathological bloods are used for comparison with the normal.

Prerequisites: Courses 3 and 4.

Professor Lewis and Assistant.

5. BIOCHEMICAL PREPARATIONS. Any quarter. Time to be arranged.

Practice in the preparation of compounds of biochemical importance.

Prerequisites: Courses 3 and 4.

Professor Lewis.

6. BIOCHEMICAL SEMINAR. Throughout the year. Time to be arranged.

Reports of contributions to biochemical literature are made and are discussed in the light of recent advances in biochemistry.

Professor Lewis.

7. RESEARCH IN BIOCHEMISTRY. Any quarter. Time to be arranged.

Persons properly qualified may pursue research work under guidance. Credit allowed will depend upon the character of the work accomplished.

Professor Lewis.

PHYSIOLOGY AND PHARMACOLOGY

1. PHYSIOLOGY. Spring and autumn quarters. 316 h.

Lectures, recitations, laboratory exercises, and demonstrations.

The physiology of the cell, muscle, and nerve, central nervous system, autonomic nervous system, special senses, blood and lymph, circulation, respiration, digestion and secretion, including the excretory organs, metabolism, nutrition and heat regulation, the endocrine organs, and reproduction.

Assistant Professor Kretschmer.

2. PHARMACOLOGY, MATERIA MEDICA, AND TOXICOLOGY. Autumn and winter quarters. 179 h.

Lectures, recitations, and laboratory experiments.

The physiologic action, toxicology, and therapeutics of important drugs.

Assistant Professor Kretschmer.

PATHOLOGY

1. GENERAL BACTERIOLOGY. Autumn quarter. 156 h. Required of medical students, but also open to students of other departments.

Lectures, recitations, and laboratory work.

The chemistry and biology of bacteria, classification, methods of isolation, culture and staining; the phenomena of infection, and the cultural characteristics of the pathogenic organisms. Some time is also devoted to the methods of water and milk analysis, and the identification of unknown organisms.

Assistant Professor Burrage.

2. HYGIENE AND PREVENTIVE MEDICINE. Spring quarter. 55 h. Required of medical students and open to students of other departments.

Recitations based on a standard text on public hygiene, epidemiology, and preventive medicine.

Assistant Professor Burrage.

3. GENERAL PATHOLOGY. Autumn and winter quarters. 242 h.

Lectures, recitations, and laboratory work.

The pathologic histology and pathologic physiology of the disturbances of the circulation, the degenerations, inflammation, tissue regeneration, the specific infections, and tumors. The laboratory work is conducted by means of stained sections given to the class as unknowns, to be analyzed and diagnosed. The sections become the property of the student.

Professor Whitman.

4. ADVANCED BACTERIOLOGY. Any quarter. Hours to be arranged.

Practice in the bacteriological examination of water, milk, food, soil, and air; the determination of vital resistance and

efficiency of antiseptics; the methods of bacteriological diagnosis of the specific infections. Special problems will be assigned for investigation to qualified students.

Assistant Professor Burrage.

5. BACTERIOLOGY FOR ENGINEERING STUDENTS. Winter quarter. 22 h.
Primarily for engineering students, but open also to students of other departments.

Lectures with demonstrations and recitations on bacteria, their distribution in nature, and their relation to disease and water epidemics; micro-organisms causing odors and tastes in water supplies; the principles of water and sewage purification; malaria and mosquito extermination; and such other problems as are involved in the work of the sanitary engineer.

Assistant Professor Burrage.

6. BACTERIOLOGY FOR STUDENTS OF HOME ECONOMICS. Winter quarter. 66 h. Primarily for students of Home Economics, but open also to others.

Lectures, recitations, and laboratory exercises.

The classification of bacteria, methods of cultivation and sterilization with special reference to the preservation of food, the fermentations, and the diseases carried by food.

Assistant Professor Burrage.

7. ADVANCED PATHOLOGY.

An opportunity will be given to properly qualified students to pursue work, either in some field of laboratory technique, or to take up a more intensive study of one or more phases of pathologic diagnosis than is possible in the course in general pathology.

The resources of the department are at the disposal of properly qualified persons for research work.

Professor Whitman.

CLINICAL PATHOLOGY

1. CLINICAL PATHOLOGY FOR MEDICAL STUDENTS. Autumn and winter quarters. 176 h.

Lectures and laboratory exercises.

The technique and interpretation of results of clinical examinations of sputum, urine, stomach contents, feces, blood,

cerebro-spinal fluid, transudates, exudates, and pathologic secretions. About 35 hours are devoted to animal parasites. In addition to the regularly scheduled hours, students make routine examinations, under supervision, for the University Hospital, each serving about two hours a day for a period of two weeks.

Professor Todd and Assistants.

2. CLINICAL LABORATORY METHODS. Summer quarter. 220 h. Primarily for nurses and others who wish to qualify as laboratory technicians, but also open, under certain conditions, to students who seek medical credit.

Lectures, conferences, and systematic laboratory exercises, 192 hours, with practice in routine laboratory work for the University Hospital, about 28 hours.

The course covers the same subjects as Course 1, but more attention is given to chemical methods and less to interpretation of results. Any of the subjects may be taken separately by special arrangement.

Professor Todd and Assistants.

3. CLINICAL LABORATORY METHODS (SHORT COURSE). Summer quarter, first three weeks. Repeated in the last three weeks of the quarter. 60 h. Primarily for practitioners of medicine and others who wish instruction in routine methods applicable to a physician's office laboratory.

Lectures and laboratory exercises.

Professor Todd and Assistants.

4. SERODIAGNOSIS: TECHNIQUE OF THE WASSERMANN TEST. Hours to be arranged.

Lectures and laboratory exercises.

The technique of one of the standard methods of performing the Wassermann test, together with the preparation and titration of the reagents. The course is designed for technicians and only such theoretical considerations as are essential to an understanding of the test are included.

Professor Todd and Assistants.

5. ELEMENTARY CLINICAL LABORATORY METHODS. Spring quarter.
17 h. For nurses in training.

An introductory course.

Lectures on the clinical value of various laboratory procedures, with emphasis upon the methods of collecting material, together with brief laboratory drill in the technique of the simpler tests.

Professor Todd and Assistants.

6. PRACTICAL CLINICAL LABORATORY WORK. Throughout the school year. Graduate credit, 5 to 6 h. Open only to matriculates in the Graduate School, and limited to two.

Routine examination of material from University Hospital with full laboratory studies of selected cases.

Professor Todd.

7. ADVANCED CLINICAL PATHOLOGY. Autumn, winter, or spring quarter. Hours to be arranged. Graduate credit, 3 h. Open only to matriculates in the Graduate School.

Seminar and laboratory work upon selected subjects.

Professor Todd.

8. SERODIAGNOSIS. Autumn, winter, or spring quarter. Hours to be arranged. Graduate credit, 3 to 4 h. Open only to matriculates in the Graduate School.

Seminar and laboratory work.

Professor Todd.

The following correspondence courses are offered:

9. HEMATOLOGY. The time required for the course is estimated at 150 to 200 h.

Twenty assignments covering the technique and interpretation of clinical examinations of the blood with the exception of the more elaborate chemical and serological methods. Equivalent to the corresponding portions of Course I.

Professor Todd.

10. BLOOD MORPHOLOGY. Time required is estimated at 60 to 80 h.

The microscopic study of normal and pathologic blood corpuscles, blood parasites, etc.

Professor Todd.

PRINCIPLES OF MEDICINE

1. PRINCIPLES OF MEDICINE. Spring quarter. 55 h.

Lectures and clinical exercises.

The nature of disease processes, the fundamental principles of differential diagnosis, and methods of physical examination.

Associate Professor Gilbert.

PRINCIPLES OF SURGERY

1. PRINCIPLES OF SURGERY. Spring quarter. 55 h.

Lectures, recitations, and clinical exercises.

Wounds and healing of wounds, infection, inflammation, necrosis, surgical tuberculosis, bandaging, etc.

Doctor Giffin.

THIRD YEAR (AT DENVER)

MEDICINE

1. THEORY AND PRACTICE. Three quarters. 160 h.

Lectures, recitations, and reports covering the subject of internal medicine.

Professors Meader, Arndt, and Burnett.

2. CLINICAL MEDICINE. Three quarters. 46 h.

A series of clinics at the County Hospital upon patients from the medical wards.

The Medical Staff.

3. PEDIATRICS. Winter quarter. 33 h.

Lectures, recitations, and clinics on infant feeding and the important diseases of childhood.

Associate Professor Gengenbach.

4. CLINICAL THERAPEUTICS. Spring quarter. 33 h.

Lectures and recitations on the application of the principles of pharmacology to specific therapeutic problems.

Associate Professor Kleiner.

5. PHYSICAL DIAGNOSIS. Any quarter. 30 h.

Clinical exercises with small groups of students on the recognition and interpretation of abnormal signs.

Doctor Barney.

6. CASE TAKING. Any quarter. 30 h.

Practical history taking by small groups of students in the Dispensary.

The Dispensary Staff.

NEUROLOGY

1. PRINCIPLES OF NEUROLOGY. Autumn quarter. 36 h.

Lectures reviewing the anatomy and physiology of the central nervous system, its symptomatology, and neurologic methods.

Professor Neuhaus.

2. NEUROLOGIC DIAGNOSIS. Any quarter. 30 h.

Practical exercises for small groups of students in history taking, and physical examination of neurologic patients, and the physiological interpretation of neurologic signs and symptoms. Instruction is also given in the diagnostic and therapeutic use of electricity.

Doctor Pershing or Doctor Tepley.

3. PATHOLOGICAL PSYCHOLOGY. Winter quarter. 22 h.

Lectures on the fundamental laws of psychology as applied to the relation of physician and patient, and to diseased states, psychanalysis, etc.

Professor Neuhaus.

SURGERY

1. MINOR SURGERY. Autumn and winter quarters. 46 h.

Lectures on the surgery of the bones and joints, and the minor surgical operations.

Assistant Professor Dean and Doctor Shere.

2. SURGICAL PATHOLOGY. Winter quarter. 22 h.

Lectures and laboratory.

Doctor Hegner.

3. ORTHOPEDICS. Spring quarter. 22 h.

Clinical lectures on the more important orthopedic conditions.

Associate Professor Jones.

4. GENITO-URINARY SURGERY. Spring quarter. 33 h.
Lectures.

Associate Professor Lyons.

5. ROENTGENOLOGY. Spring quarter. 22 h.

Lectures and demonstrations on the diagnostic and therapeutic use of the Roentgen ray and on the interpretation of skiagrams.

Associate Professor Childs.

6. CLINICAL SURGERY. Three quarters. 46 h.

A series of clinics at the County Hospital on patients from the surgical wards.

The Surgical Staff.

OBSTETRICS AND GYNECOLOGY

1. NORMAL OBSTETRICS. Autumn quarter. 48 h.

Lectures on the physiology, diagnosis, and management of normal pregnancy, labor, and the puerperium.

Professor Ingraham and Doctor Cary.

2. PATHOLOGICAL OBSTETRICS. Winter quarter. 33 h.

Lectures on the pathology, diagnosis, and treatment of the complications of pregnancy.

Professor Ingraham and Doctor Ferris.

3. MANIKIN COURSE. Any quarter. 30 h.

The class is divided into small groups for practical exercises on the manikin, and practice in gynecological and obstetrical diagnosis, accompanied by lectures and recitations.

Doctor Ferris.

4. GYNECOLOGY. Spring quarter. 33 h.
Lectures.

Professor Ingraham.

OPHTHALMOLOGY

1. OPHTHALMOLOGY. Winter quarter. 33 h.

Lectures and recitations on errors of refraction and ocular movements, and the common injuries and diseases of the eye.

Professor Jackson.

2. DEMONSTRATION. Any quarter. 10 h.

Demonstrations to small sections of the class on methods of diagnosis, ophthalmoscopy, etc., with lectures and recitations on normal optics.

Professor Jackson and Assistants.

OTO-LARYNGOLOGY

1. OTO-LARYNGOLOGY. Autumn quarter. 36 h.

Lectures on diseases of the ear, nose, and throat.

Professors Levy and Baur.

2. DEMONSTRATIONS. Any quarter. 20 h.

The class is divided into small groups for lectures and quizzes on the anatomy and physiology of the ear, nose, and throat, and for practical diagnostic exercises in the use of the otoscope, laryngoscope, rhinoscope, etc.

Professor Levy and Assistants.

DERMATOLOGY

1. DERMATOLOGY. Spring quarter. 33 h.

Lectures on the commoner diseases of the skin, and syphilis.

Professor Markley.

PATHOLOGY

1. SPECIAL PATHOLOGY. Three quarters. 62 h.

Lectures and laboratory demonstrations on pathological conditions and disease processes of the more important organs and organ systems.

Assistant Professor Mugrage.

2. IMMUNITY AND SPECIAL PATHOLOGY. Three quarters. 93 h.

Lectures, recitations, and laboratory demonstrations on the phenomena of immunity, and their application to diagnosis and treatment. The course also includes practical laboratory exercises on tumor diagnosis.

Assistant Professor Mugrage.

FOURTH YEAR (AT DENVER)

CLINICAL INSTRUCTION

Clinical instruction is given in three forms, namely, amphitheater clinics, clinical clerkships, and dispensary clinics. Students are given every facility compatible with the welfare of the patient, for direct personal study of the patient.

GENERAL CLINICS are held from 8:00 to 9:00 at the County Hospital, as follows:

	Hours per Year
Medicine	45
Surgery	45
Neurology and Psychiatry	34
Pediatrics	11
Tuberculosis	22
Genito-Urinary Surgery	22

The hours from 9:00 to 11:00 a. m., are assigned to Clinical Clerkships. In this capacity the students are apportioned among the various departments of the County Hospital and carry on their studies of patients under the direct supervision of members of the Visiting Staff.

The hours spent in each department are approximately as follows:

	Hours		Hours
Dermatology and Contagious Diseases	14	Ophthalmology	14
Genito-Urinary Diseases	28	Orthopedics	42
Medicine	42	Oto-laryngology	28
Neurology and Psychiatry ...	42	Pediatrics	42
Obstetrics and Gynecology ...	42	Surgery	42
		Tuberculosis	42

OBSTETRICS. Each student, in addition to his Clinical Clerkship, is required personally to attend a minimum of six cases, and may, if he desires, attend a much larger number.

GROSS PATHOLOGY. The class is divided into small sections for attendance upon autopsies, each section attending all autopsies posted during a given time. Credit for attendance at 25 autopsies is required of each student so far as material permits.

DISPENSARY CLINICS are conducted in the following departments: Medicine; Pediatrics; Surgery; Neurology; Gynecology; Eye; Ear, Nose, and Throat; Dermatology and Genito-Urinary Surgery; Tuberculosis; and the Clinical Laboratory.

The class is divided into small sections. Each section spends one and one-half hours daily for three and one-half weeks in each of the above departments. All cases are studied by the students under the immediate supervision of members of the Dispensary Staff.

The didactic teaching of the fourth year is as follows:

MEDICINE

1. CASE TEACHING IN MEDICINE. Three quarters. 33 h.
Associate Professor Gilbert.
2. CASE TEACHING IN PEDIATRICS. Winter and spring quarters. 22 h.
Associate Professor Gengenbach and Doctor Amessee.
3. DIETETICS. Autumn quarter. 12 h.
Lectures on the application of the chemistry and physiology of metabolism to clinical problems.
Doctor Love.

NEUROLOGY AND PSYCHIATRY

1. NEUROLOGY AND PSYCHIATRY. Three quarters. 66 h.
Lectures on psychiatry, the psycho-neuroses, and the principles of psycho-therapy; and the organic diseases of the peripheral nerves, spinal cord, and brain.
Associate Professor Pershing and Assistant Professors Delehanty and Moleen.

SURGERY

1. LECTURES. Three quarters. 99 h.
Tumors and injuries of the abdomen, surgery of the breast, amputations, surgery of the intestines, liver, spleen, and pancreas, and surgery of the head, neck, and rectum.
Professors Freeman and Lyman and Assistant Professor Buchtel.

2. OPERATIVE SURGERY. Autumn and winter quarters. 33 h.

Small sections of students are taught by actual practice upon the dog and cadaver, under the supervision of the instructor, the principles and technique of the more important operations.

Doctors Shere and Hegner.

3. ANÆSTHESIA. Autumn quarter. 11 h.

Lectures.

Doctor Charles.

4. LOCAL ANÆSTHESIA. Winter quarter. 6 h.

Lectures.

Doctor Fowler.

MEDICAL JURISPRUDENCE

1. LECTURES. Winter quarter. 33 h.

Mr. James H. Pershing.

MEDICAL ETHICS AND HISTORY OF MEDICINE

1. TALKS BY VARIOUS MEMBERS OF THE FACULTY. Spring quarter.
11 h.

SUMMARY OF COURSES FOR 1920-1921

FIRST YEAR:	Lect.	Lab.	Clin.	Total
Anatomy	104	296	...	400
Hist., Embr., and Neuro-Anat....	81	351	...	432
Physiology	66	154	...	220
Biochemistry	77	165	...	242
	328	966	...	1294
SECOND YEAR:				
Physiology	24	72	...	96
Bacteriology	36	120	...	156
Pathology	88	154	...	242
Anatomy	44	99	...	143
Hygiene	55	...	...	55
Pharmacology	80	99	...	179
Surgery	25	...	30	55
Medicine	25	...	30	55
Clin. Pathology	55	121	...	176
	432	665	60	1157
THIRD YEAR:				
Dermatology	33	...	...	33
Genito-Urinary Diseases	33	...	...	33
Gynecology	33	...	...	33
Medicine	182	...	106	288
Neurology	58	...	30	88
*Obstetrics	81	...	30	111
Ophthalmology	33	...	10	43
Orthopedics	22	...	...	22
Oto-laryngology	36	...	20	56
Pathology	96	68	...	164
Pediatrics	33	...	...	33
Roentgenology	22	...	...	22
Surgery	68	...	46	114
Therapeutics	33	...	...	33
	763	68	242	1073
FOURTH YEAR:				
Dermatology .....	...	...	30	30
Dietetics	12	...	...	12
Genito-Urinary Surgery .....	...	...	43	43
Medicine	33	...	151	184
Medical Ethics and History.....	11	...	...	11
Medical Jurisprudence	33	...	...	33
*Obstetrics and Gynecology.....	...	...	72	72
Ophthalmology .....	...	...	44	44
Orthopedics .....	...	...	72	72
Oto-laryngology .....	...	...	58	58
†Pathology .....	...	...	...	...
Pediatrics	22	...	72	94
Surgery	116	33	117	266
	227	33	659	919
RECAPITULATION:				
First year	328	966	...	1294
Second year	432	665	60	1157
Third year	763	68	242	1073
Fourth year	227	33	659	919
Totals.....	1750	1732	961	4443

* Does not include time spent in personal conduct of out-patient cases.

† Presence at 25 autopsies required.

UNIVERSITY OF COLORADO HOSPITAL

GENERAL STATEMENT

The University Hospital is situated on ground adjacent to the Main Campus. The main hospital is equipped for the care of medical, surgical, and obstetrical cases; there is a separate building for the care of contagious cases. In the wards and private rooms there are accommodations for seventy-five patients.

Any reputable physician may bring his patients to the hospital for care, on payment of the established fees. Students of the University are cared for at a discount from the usual fees, and it has often been found of great advantage to them when sick away from home.

HOSPITAL BOARD

CHARLES N. MEADER, A.B., M.D., Chairman.

ROBERT C. LEWIS, Ph.D., Secretary.

VALENTINE B. FISCHER, M.D.

OSCAR M. GILBERT, M.D.

WALTER W. REED, M.D.

JAMES C. TODD, M.D.

FRANK H. WOLCOTT, B.S.

MARTHA M. RUSSELL, R.N.

ADMINISTRATIVE STAFF

MARTHA M. RUSSELL, R.N., Superintendent.

LUCINDA MARTIN, R.N., Surgical Supervisor.

GENEVA BARNSLEY, R.N., Night Supervisor.

BARBARA MERTENS, Dietitian.

UNIVERSITY OF COLORADO TRAINING SCHOOL FOR NURSES

FACULTY

GEORGE NORLIN, Ph.D., LL.D., President of the University.
CHARLES N. MEADER, A.B., M.D., Dean of the School of Medicine.
MARTHA M. RUSSELL, R.N., Superintendent of the Hospital; Practical Nursing, Ethics of Nursing.
JAMES C. TODD, Ph.B., M.D., Clinical Pathology.
CARBON GILLASPIE, M.D., Anatomy.
ROBERT C. LEWIS, Ph.D., Chemistry.
OSCAR M. GILBERT, M.D., Medical Diseases.
WALTER W. REED, M.D., Gynecology and Obstetrics.
ANNA WILLIAMS, A.M., Medical Dietetics.
SEVERANCE BURRAGE, B.S., D.P.H., Ph.D., Bacteriology.
LEONA VINCENT, A.B., Psychology.
VALENTINE B. FISCHER, A.B., M.D., D.Oph., Diseases of Eye, Ear, Nose, and Throat.
MARTIN E. MILES, M.D., Nervous and Mental Diseases.
WALTER K. REED, A.B., M.D., Pediatrics.
CYRUS W. POLEY, A.B., M.D., Communicable Diseases.
LUCINDA MARTIN, R.N., Surgical Nursing.
BARBARA MERTENS, Medical and Practical Dietetics.

GENERAL STATEMENT

The Training School for Nurses of the University of Colorado, established in 1898, offers a thorough course of instruction in theoretical and practical nursing.

REQUIREMENTS FOR ADMISSION

See page 28.

COURSES OF STUDY

Students who wish to be graduates in nursing are admitted to the school for a three-year course and must pass satisfactory examinations in the required studies.

Students who wish to take a course leading to the B.S. degree as well as the nurse's diploma must spend three years in the College of Arts and Sciences and two years and three months in the Hospital. See page 67.

The classes in science are taught by members of the University faculty, and those in nursing subjects, by members of the Hospital staff.

The University Hospital gives opportunity for learning by nursing for obstetrical, medical, surgical, and tubercular patients.

EXPENSES

Students on duty in the hospital who are candidates for either a diploma or a degree pay no tuition fee and receive maintenance which includes board, lodging, and laundry; an allowance of \$8.00 per month is given to cover expenses of uniforms and textbooks.

DESCRIPTION OF COURSES*

FIRST YEAR

1. ANATOMY AND PHYSIOLOGY. Autumn quarter. 50 h.

Lectures and demonstrations; gross and microscopic structure of human body.

Associate Professor Gillaspie.

2. BACTERIOLOGY. Spring quarter. 40 h.

Principles and technique of general bacteriology. Studies in the morphologic and biologic character of common bacteria. Preparation of culture media.

Assistant Professor Burrage.

3. CHEMISTRY. Autumn quarter. 30 h.

Lectures and demonstrations, and introduction to the fundamentals of inorganic and organic chemistry, and a more detailed study of the chemistry and physiology of digestion, metabolism, and excretion.

Professor Lewis.

4. PERSONAL HYGIENE. Autumn quarter. 20 h.

Lectures and recitations for the purpose of emphasizing the importance of good health.

Miss Small and Miss Russell.

5. PRACTICAL DIETETICS. Autumn quarter. 20 h.

Lectures and laboratory work in the selection and preparation of foods.

Miss Mertens.

* The hours indicated after each course are the total time devoted to the course

6. NURSING, THEORY AND PRACTICE.* Four quarters. 80 h.

Lectures and demonstrations to familiarize the student with methods of caring for patients in various conditions.

Miss Russell and Miss Dunlap.

7. MASSAGE.* Winter quarter. 10 h.

Theory and practice of general manipulation of body tissues.

Miss Benson.

8. DRUGS AND SOLUTIONS.* Summer quarter. 10 h.

Drill in practical handling of medicines, use of tables, and making solutions.

Miss Russell.

9. MATERIA MEDICA. Winter quarter. 20 h.

Lectures and recitations on the medicines and treatments in common use.

Miss Dunlap.

SECOND YEAR

1. MEDICAL DISEASES. Three quarters. 30 h.

Lectures on general medical diseases, including typhoid, pneumonia, tuberculosis, and chronic diseases.

Doctors Gilbert and Groom.

2. SURGICAL TECHNIQUE. Autumn quarter. 10 h.

Lectures and demonstrations on operating room work and care of surgical patients.

Mrs. Martin.

3. OBSTETRICS. Fall and winter quarters. 20 h.

Lectures and demonstrations on the care of obstetrical patients during labor and the puerperium.

Doctor W. W. Reed.

4. PEDIATRICS. Winter quarter. 20 h.

Lectures and demonstrations on the care of infants and children.

Doctor W. K. Reed.

5. HISTORY OF NURSING. Winter quarter. 10 h.

Lectures and recitations on the development of the profession of nursing.

Miss Dunlap.

* These subjects must be taken by the candidate for the degree and diploma.

6. EYE, EAR, NOSE, AND THROAT DISEASES. Spring quarter. 10 h.
Lectures on anatomy and physiology; general and local treatments.

Doctor Valentine B. Fischer.

7. ELEMENTARY CLINICAL LABORATORY METHODS. Autumn quarter.
17 h.

Lectures on the clinical value of various laboratory procedures with emphasis upon methods of collecting material, together with brief laboratory drill in the technique of the simpler tests.

Professor Todd and Assistants.

THIRD YEAR

1. MENTAL AND NERVOUS DISEASES. Fall quarter. 10 h.

Lectures on the medical and social aspects of mental diseases, and the possibilities of mental hygiene.

Doctor Miles.

2. GYNECOLOGY. Winter and spring quarters. 20 h.

Lectures and demonstrations; study of terms and definitions bearing on the nursing of pelvic diseases; general care of gynecological cases; operative treatment.

Doctor W. W. Reed.

3. PROFESSIONAL PROBLEMS. Winter and spring quarters. 20 h.

Lectures, classes, and conferences for the purpose of introducing the student to the possibilities and responsibilities of nursing.

Miss Russell and special lecturers.

4. MEDICAL DIETETICS. Winter quarter. 10 h.

Lectures on the use of diets in the treatment of diseases.

Associate Professor Williams.

5. PSYCHOLOGY. Spring quarter. 10 h.

Lectures and class discussions.

Miss Vincent.

6. COMMUNICABLE DISEASES. Spring quarter. 10 h.

Lectures on social, economic, and educational factors in the prevention and treatment of communicable diseases.

Doctor C. W. Poley.

Senior students are required to take five hours (total 55-60 h.) electives.

SCHOOL OF LAW

FACULTY AND LECTURERS

FACULTY

GEORGE NORLIN, Ph.D., LL.D., President of the University.

JOHN D. FLEMING, A.B., LL.B., LL.D., Dean; Charles Inglis Thomson Professor of Law.

JOHN CAMPBELL, A.M., LL.B., LL.D., Dean, Emeritus.

ALBERT A. REED, LL.B., Professor of Law, Emeritus.

FRED G. FOLSOM, A.B., LL.B., Professor of Law.

WILLIAM R. ARTHUR, A.B., LL.B., Professor of Law.

HERBERT S. HADLEY, A.B., LL.B., LL.D., Professor of Law.

BRYANT SMITH, A.M., LL.B., Assistant Professor of Law.

LECTURERS

*ROBERT S. MORRISON, Lecturer on Law of Mines and Mining.

WILLARD J. WHITE, A.M., M.D., Lecturer on Medical Jurisprudence.

JAMES W. MCCREERY, Lecturer on Law of Irrigation and Water Rights.

†JOHN E. ROBINSON, Lecturer on Bankruptcy.

HARRY S. SILVERSTEIN, A.B., Lecturer on Criminal Procedure.

†HENRY E. LUTZ, LL.B., Lecturer on Equity Pleading and Practice.

JOHN H. FRY, LL.B., Lecturer on Auxiliary Code Remedies.

ARTHUR W. FITZGERALD, A.B., LL.B., Lecturer on Conveyancing and Abstracts of Title.

* Died September, 1920.

† Resigned. 1920.

GENERAL STATEMENT

HISTORY

The School of Law was organized in 1892. The course of study occupied two years until 1898, when it was increased to three years. In 1912 the entrance requirements were advanced to include two years of college work in addition to the high school education previously prescribed. It has been a member of the Association of American Law Schools since the first annual meeting of the Association in 1901.

BUILDING

The Simon Guggenheim Law Building, erected in 1909, contains lecture and classrooms, professors' rooms, moot and practice court rooms, and rooms for the library. It is the gift of Honorable Simon Guggenheim, formerly United States Senator from Colorado.

THE CHARLES INGLIS THOMSON PROFESSORSHIP

Mrs. Olivia Thomson, lately deceased, has given by will for use of the School of Law the sum of \$75,000, the proceeds of which are used to support, in memory of her husband, a professorship known as "The Charles Inglis Thomson Professorship of Law."

THE LIBRARY

The University Library is open to students of all departments.

The Law Library contains 11,000 volumes, embracing many sets of state reports, the National Reporter System, all the reports of the Annotated Series, the digests, including the Century, all the encyclopedias, many original English Reports, the English Reports Full Reprint, digests, and statutes, U. S. departmental reports, and a carefully selected collection of textbooks, and is increased each year under special appropriations by the Regents. Most of the leading law journals, American and English, are regularly taken and are on hand. The Law Library is under the supervision of an experienced librarian and assistant, and is open to the students from 8:00 A.M. to 10:00 P.M. on week days.

An accession of one thousand volumes, chiefly reports, from the library of the late Judge C. I. Thomson, the gift of his widow, has been lately made. The volumes are known and catalogued as the "C. I. Thomson Collection."

REQUIREMENTS FOR ADMISSION

See pages 28, 32.

ADVANCED STANDING

Students if otherwise entitled to admission as regular students will be admitted to advanced standing in the second or third year only upon presentation of satisfactory certificates of the completion of equivalent subjects in another law school of equal rank. Such applicants may also, in the discretion of the faculty, be required to undergo an examination in any or all subjects of the first or second year.

SPECIAL STUDENTS

See page 32.

FEES

For fees, see pages 36, 38.

DEGREE OF BACHELOR OF LAWS

The degree Bachelor of Laws will be conferred on students who have met the entrance requirements for candidates for the degree and who have satisfactorily completed the three-year curriculum in accordance with the regulations established by the faculty. The time allowance may be proportionally reduced for those who enter with advanced standing, but the candidate for a degree must have pursued at least one year's course as a resident student. No degree will be conferred until the candidate shall have reached the age of twenty-one years.

METHOD OF INSTRUCTION

What is known as the Case-system, or the study of the principles of law as illustrated in judicial opinion, is followed with the view of arriving at such principles by the process of inductive reasoning.

TEACHING PRACTICE

As thorough a course as circumstances will allow in court practice and procedure is deemed an essential part of the curriculum. To supply a knowledge of this, a Practice Court has been provided, in which the records and files are kept and the proceedings conducted in conformity with the usage and practice in the courts of Colorado.

It is intended that each student shall participate in the conduct to final judgment of at least two cases in each of the second and third years of his course.

INSTRUCTION IN OTHER DEPARTMENTS OF THE UNIVERSITY

The instruction given in other departments of the University is open also to students of the School of Law, subject to the approval of the Law Faculty. Among the numerous courses, those upon political science and economics, geology, mineralogy, history, oratory and debate, are particularly recommended for law students. Students intending to take up the study of law are advised to consult with the Dean in regard to their pre-legal courses.

PRIZES

Callaghan and Company, Law Publishers, Chicago, give annually a prize of The Cyclopedic Law Dictionary, one volume, to the student of the second year class who attains the best general average in his studies for the year.

COURSE OF STUDY

It is the purpose of the School to afford such training in the fundamental principles of the English and American law as will thoroughly prepare the student to practice his profession with credit in any state or country where this law prevails.

Every candidate for the degree Bachelor of Laws is required to take all the subjects of the first year, at least thirteen hours a week in each quarter of the second year, and at least thirteen hours a week in each quarter of the third year. The work of the second and third years must include all subjects preceded by a star in the outline of studies below.

In addition to the above, all students are required to take the Practice Court work, and such special lectures as are provided.

FIRST YEAR

FIRST QUARTER

COMMON LAW PLEADING. 5 h.

Ames' Cases on Pleading (2d ed.); McKelvey on Common Law Pleading. (2d ed.) Professor Folsom.

CONTRACTS I. 5 h.

Williston's Cases on Contracts, Vols. I and II (1904 ed.).
Professor Arthur.

TORTS I. 5 h.

Ames and Smith's Cases on Torts, Vols. I and II (1909-1910 ed.).
Assistant Professor Smith.

SECOND QUARTER

CONTRACTS II. 5 h. (Continued.)

Professor Arthur.

PROPERTY. 5 h.

Gray's Cases on Property, Vol. I (2d ed.).
Professor Arthur.

TORTS II. 4 h. (Continued.)

Assistant Professor Smith.

THIRD QUARTER

AGENCY. 3 h.

Huffcut's Cases on Agency (2d ed.).

Professor Fleming.

†CRIMINAL LAW AND PROCEDURE. 5 h.

Beale's Cases on Criminal Law (3d ed.).

Professor Hadley.

PROPERTY. 5 h.

Bigelow's Cases on Rights in Land.

Professor Arthur.

USE OF LAW BOOKS (with practical exercises). 2 h.

Professor Arthur.

SECOND YEAR

FIRST QUARTER

*BILLS AND NOTES. 5 h.

Smith and Moore's Cases on Bills and Notes.

Assistant Professor Smith.

*CIVIL PROCEDURE UNDER THE CODE. 3 h.

Colorado Code of Procedure and selected cases.

Professor Folsom and Mr. Fry.

INSURANCE. 2 h.

Richard's Cases on Insurance.

Professor Fleming.

*PROPERTY. 5 h.

Aigler's Cases on Titles.

Professor Arthur.

SECOND QUARTER

CARRIERS. 3 h.

Beale's Cases on Carriers (2d ed.).

Assistant Professor Smith.

DAMAGES. 3 h.

Beale's Cases on Damages (2d ed.).

Assistant Professor Smith.

* Required work.

† Mr. Arnold A. Odium, A.B., LL.B., will teach this course instead of Professor Hadley, on leave of absence, third quarter, 1920-1921.

***EQUITY JURISDICTION I. 5 h.**

Ames' Cases on Equity, Vol. I.

Professor Folsom.

***EVIDENCE I. 4 h.**

Thayer's Cases on Evidence (2d ed.), Chapters I and II.

Professor Folsom.

SALES. 4 h.

Williston's Cases on Sales (2d or 3d ed.).

Professor Fleming.

THIRD QUARTER**DOMESTIC RELATIONS. 3 h.**

Woodruff's Cases on Domestic Relations (3d ed.).

Assistant Professor Smith.

EQUITY PLEADING AND PRACTICE. 1 h.

Selected cases.

Professor Folsom.

***EQUITY JURISDICTION II. 2 h.**

Ames' Cases on Equity, Vol. II.

EVIDENCE II. 3 h.

Thayer's Cases on Evidence (2d ed.), Chapters III, IV, and V.

Professor Folsom.

PARTNERSHIP. 4 h.

Burdick's Cases on Partnership.

Assistant Professor Smith.

***PROPERTY. (WILLS.) 5 h.**

Costigan's Cases on Wills.

Professor Arthur.

THIRD YEAR**FIRST QUARTER*****APPELLATE PRACTICE. 2 h.**

Colorado Statutes and selected cases.

Professor Folsom.

***CONFLICT OF LAWS. 4 h.**

Beale's Shorter Selection of Cases on Conflict of Laws.

Professor Fleming.

* Required work.

***IRRIGATION AND WATER RIGHTS. 3 h.**

Bingham's Cases on Water Rights; selected cases from arid states.

Professor Fleming.

LEGAL ETHICS. 2 h.

Costigan's Cases on Legal Ethics.

Professor Hadley.

MUNICIPAL CORPORATIONS. 3 h.

Beale's Cases on Municipal Corporations.

Professor Hadley.

PROPERTY. 5 h.

Gray's Cases on Property, Vol. V (2d ed.).

Professor Arthur.

SECOND QUARTER***CONSTITUTIONAL LAW I. 4 h.**

Hall's Cases on Constitutional Law, Parts I and II.

Professor Fleming.

CONVEYANCING AND ABSTRACTS OF TITLE. 2 h.

Drafting exercises, study of selected abstracts, and title searching.

Mr. Fitzgerald.

***PRIVATE CORPORATIONS. 5 h.**

Warren's Cases on Private Corporations (2d ed.).

Professor Hadley.

PROPERTY. 5 h.

Gray's Cases on Property, Vol. VI (2d ed.).

Professor Arthur.

PUBLIC UTILITIES. 3 h.

Wyman's Cases on Public Service Companies (2d ed.).

Professor Hadley.

***STATUTES. 2 h.**

A study of some important Colorado Statutes.

Professor Fleming.

* Required work.

PLEADING AND PRACTICE UNDER THE CODE.

This course covers the work in the Practice Court described above.

Professor Folsom.

THIRD QUARTER

BANKRUPTCY.

Lectures at appointed hours.

Mr. Robinson.

*CONSTITUTIONAL LAW II. 3 h.

Hall's Cases on Constitutional Law, Part III.

Professor Fleming.

*MINES AND MINING. 4 h.

Costigan's Cases on Mining Law.

Professor Fleming.

MORTGAGES. 4 h.

Wyman's Cases on Mortgages.

Professor Arthur.

PLEADING AND PRACTICE UNDER THE CODE.

(Continued.)

Professor Folsom.

SURETYSHIP AND GUARANTY. 3 h.

Ames' Cases on Suretyship and Guaranty.

Assistant Professor Smith.

TRUSTS. 3 h.

Ames' Cases on Trusts.

Professor Folsom.

* Required work.

COLLEGE OF PHARMACY

FACULTY

GEORGE NORLIN, Ph.D., LL.D., President of the University.

HOMER C. WASHBURN, Ph.C., B.S. (Phar.), Dean; Professor of Pharmacy.

FRANCIS RAMALEY, Ph.D., Professor of Biology.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

ROBERT C. LEWIS, Ph.D., Professor of Biochemistry.

JAY W. WOODROW, Ph.D., Professor of Physics.

PAUL M. DEAN, Ph.D., Associate Professor of Chemistry.

CHARLES F. POE, A.M., B.S. (Phar.), Assistant Professor of Chemistry.

HORACE B. VAN VALKENBURGH, M.S., Assistant Professor of Chemistry.

SEVERANCE BURRAGE, B.S., D.P.H., Ph.D., Assistant Professor of Bacteriology and Hygiene.

BESS R. GREEN, A.M., Instructor in Biology.

HERBERT C. HANSON, A.M., Instructor in Biology.

GENERAL STATEMENT

ORGANIZATION

The College of Pharmacy was established by the Board of Regents in 1911 as a branch of the School of Medicine. Two years later it was separated from the School of Medicine and organized as a distinctive department of the University. Its success, both with regard to material growth and academic standards, has more than met the expectations of its organizers. Since its inception the College has made consistent growth and is now ranked as one of the foremost colleges of pharmacy of the United States.

The College of Pharmacy is well equipped to give thorough and practical instruction in all subjects pertaining to pharmacy and chemistry, and fits the student to pursue any of the various branches of those professions. Its scientific and academic courses are coordinated with those of other departments of the University. Thus its students share all the advantages and enjoy the spirit of a great university that is in close touch with the practical work of the state and nation as well as with current scientific progress.

OPPORTUNITIES IN CHEMISTRY AND PHARMACY

The opportunities of the well trained chemist and pharmacist have never been so great, nor their success so certain as at the present time. The practical results of the operation of the state and federal food and drug laws have been to create an ever-increasing demand for thoroughly trained manufacturing and dispensing pharmacists, drug inspectors, analysts, and analytical and manufacturing chemists. From now on the educational equipment of the chemist can not be regarded as complete without a thorough knowledge of the chemistry of foods and drugs, for nearly every profession or pursuit having to deal with chemistry at all is subject to the operations and standards of the state and federal laws.

COURSES AND DEGREES

THE TWO-YEAR COURSE

This course includes the first two years as outlined under "Order of Studies." It is designed to suit the needs of prescription clerks and retail druggists. Its graduates are well equipped to stand the examinations of the Boards of Pharmacy of the various states. Its certificate of graduation meets the requirements of all boards demanding graduation as a prerequisite to registration.

THE THREE-YEAR COURSE

This course includes the full three years as outlined under "Order of Studies." It is designed to meet the needs of those students preparing themselves for store managers, manufacturers and dispensers of medical products in retail stores, public hospitals, mining companies, and the U S. army and navy. The exact topics offered may be varied somewhat from year to year, but in all cases the subject matter will be distributed essentially as follows:

Subject	Credit Hours
Pharmacy	26
Chemistry	57
Botany	9
Physiology	4
Materia Medica and Pharmacology.....	6
Pharmacognosy	7
English	9
Bacteriology	3
Trigonometry	3
Physical Education	3
Electives	10
	<hr/>
	137

The degree of Pharmaceutical Chemist, Ph.C., is conferred upon students who fulfill the entrance requirements and complete the three-year course with 137 credit hours.

THE FOUR-YEAR COURSE

The first three years of this course are the same as outlined under "Order of Studies," while the fourth year includes economics,

foreign language, chemistry, pharmacy, physics, or other approved electives to the amount of 46 credit hours.

This course is designed primarily to prepare the students for service as food and drug chemists with drug and chemical manufacturing companies or with the United States government Bureau of Chemistry, also as teachers of science in high schools or professors in colleges of pharmacy, directors of public health service laboratories, industrial and consulting chemists, etc. The degree Bachelor of Science in Pharmacy, B.S. (Phar.), is conferred upon students who fulfill the entrance requirements and complete the required work with 183 credit hours. Graduation from this course admits to the Graduate School of this or other universities, so that students who wish still more advanced work may proceed to the A.M. and Ph.D. degrees.

EQUIPMENT

Ample classroom and library facilities are offered and the laboratories of pharmacy, chemistry, botany, physiology, and bacteriology are fully equipped with standard apparatus and materials.

REQUIREMENTS FOR ADMISSION

See page 33.

FEEES

See pages 36, 38.

FIRST YEAR

AUTUMN QUARTER		WINTER QUARTER	
Pharmacy	3	Pharmacy	5
Chemistry	5	Chemistry	5
Botany	3	Botany	3
English	3	English	3
Physical Education or Drill.....	1	Physical Education or Drill.....	1
	<hr/> 15		<hr/> 17
SPRING QUARTER			
Pharmacy	3		
Chemistry	5		
Botany	3		
English	3		
Physical Education or Drill.....	1		
	<hr/> 15		

SECOND YEAR

AUTUMN QUARTER		WINTER QUARTER	
Pharmacy	4	Pharmacy	2
Pharmacognosy	2	Pharmacognosy	2
Qualitative Analysis	3	Qualitative Analysis	3
Organic Chemistry	3	Organic Chemistry	3
Physiology	2	Organic Preparations	3
		Physiology	2
	<hr/> 14		<hr/> 15

SPRING QUARTER

Pharmacy	5
Pharmacognosy	2
Qualitative Analysis	3
Organic Chemistry	3
Trigonometry	3
	<hr/> 16

THIRD YEAR

AUTUMN QUARTER		WINTER QUARTER	
Pharmacy	5	Pharmacy	1
Materia Medica	2	Materia Medica	2
Quantitative Analysis	4	Quantitative Analysis	4
Electives	5	Bacteriology	3
		Sanitary Water Analysis	2
	<hr/> 16	Alkaloidal Analysis	2
			<hr/> 14

SPRING QUARTER

Materia Medica	2
Quantitative Analysis	4
Drug Analysis	3
Pharmaceutical Testing	2
Electives	4
	<hr/> 15

DESCRIPTION OF COURSES

PHARMACY

1. THEORETICAL PHARMACY. Autumn quarter. 3 h.

Lectures and recitations

An introductory course in pharmacy consisting of a study of the principles of pharmacy with a sufficient number of demonstrations to illustrate their application. This course also includes pharmaceutical arithmetic.

2. OFFICIAL PHARMACY. Winter quarter. 5 h.

Lectures, recitations, and laboratory.

A study of the pharmacopœial and national formulary preparations. The student also makes preparations covering the first half of the United States Pharmacopœia.

3. OFFICIAL PHARMACY. Spring quarter. 3 h.

Recitations.

Continuation of Course 2, but without laboratory work.

4. OFFICIAL PHARMACY. Autumn quarter. 3 h.

Recitations and laboratory.

A further study of official compounds covering history, methods of preparation, physical and chemical properties. The laboratory work will include the making of a large number of preparations covering the latter half of the United States Pharmacopœia.

5. OFFICIAL PHARMACY. Winter quarter. 2 h.

Recitations

A continuation of Course 4.

6. PRESCRIPTIONS AND DISPENSING. Spring quarter. 5 h.

Recitations and laboratory.

A detailed study of the prescription and the art of compounding and dispensing.

7. ADVANCED PHARMACY. Autumn quarter. 5 h.

Laboratory.

An advanced course in pharmaceutical technique in which the student prepares a number of preparations of a difficult nature requiring complicated apparatus and chemical synthesis.

8. HISTORY OF PHARMACY. 2 h.

Readings and recitations.

The study of the evolution of modern pharmacy, the work of the various national organizations, familiarizing the student with prominent men in pharmacy of both the past and the present.

9. COMMERCIAL PHARMACY. 1 or 2 h.

Readings and recitations.

10. PHARMACY SEMINAR. 1 or 2 h.

Readings and consultations.

A review of current pharmaceutical literature.

11. DENTAL AND TOILET PREPARATIONS. 2 to 5 h.

Laboratory.

A study of the bases, the cleansing and antiseptic properties, and the methods of manufacturing these preparations.

12. DOMESTIC PREPARATIONS. 1 to 2 h.

Laboratory.

A course covering the methods for manufacturing various preparations such as furniture and metal polishes, washing powders, insecticides, disinfectants, etc.

BOTANY

1. COLLEGE BOTANY. Autumn quarter. 3 h.

Recitations, laboratory, and illustrated lectures.

A general course in Botany dealing especially with the higher plants. Morphology, physiology, and microscopic anatomy are treated with special attention to such structural features and chemical properties of plants as will best prepare the student for his later study of pharmacognosy.

2. ECONOMIC BOTANY. Winter quarter. 3 h.

Recitations, laboratory, and illustrated lectures.

A study of the more important plants and plant products of economic value; grains, seeds, nuts, fruits, vegetables, textile fibers, tea, coffee, spices, crude drugs; technical microscopy; origin and improvement of cultivated plants.

3. **ADVANCED ECONOMIC BOTANY.** Spring quarter. 3h.
Lectures and laboratory.
Chiefly the botany of drug plants with study of microscopy of crude drugs.
4. **PROBLEMS IN BOTANY OF DRUG PLANTS.** 5 h.
Students sufficiently prepared will be directed in botanical investigation of new or little known native drug plants.
For elective courses in Botany the student may consult the schedule of the College of Arts and Sciences.

PHARMACOGNOSY

1. **PHARMACOGNOSY.** Autumn quarter. 3 h.
Recitations and laboratory.
A study of crude and powdered drugs including their history, origin, classification, constitution, and means of identification.
2. **PHARMACOGNOSY.** Winter quarter. 2 h.
A continuation of Course 1.
3. **PHARMACOGNOSY.** Spring quarter. 2 h.
A continuation of Course 2.

PHYSIOLOGY AND PHARMACOLOGY

- 1-2. **HUMAN PHYSIOLOGY.** Autumn and winter quarters. 2 h.
Lectures, recitations, and demonstrations with laboratory experiments, giving a general knowledge of the structure and functions of the human body.
- 3-4. **PHARMACOLOGY AND MATERIA MEDICA.** Autumn, winter, and spring quarters. 2 h.
Recitations and lectures.
Physiological and toxicological actions of chemical substances and their therapeutic uses in medicine.
Prerequisites: Physiology, official pharmacy, organic chemistry.

BACTERIOLOGY

1. **ELEMENTS OF BACTERIOLOGY.** Winter quarter. 4 h.
Recitations, lectures, and laboratory.
An introductory course dealing with general principles and simple laboratory technique.
Prerequisites: Botany and organic chemistry; sanitary science is also highly desirable.

CHEMISTRY

1. GENERAL INORGANIC CHEMISTRY. Three quarters. 3 h. Those electing Course 1 must also elect Course 2.

A course of lectures dealing with the laws and theories of chemistry, together with a study of the elements and their most important compounds.

2. GENERAL INORGANIC CHEMISTRY. Three quarters. 2 h. This is a laboratory course designed to accompany Course 1.
4. ELEMENTARY QUALITATIVE ANALYSIS. Three quarters. 3 h.

A course in the separation and identification of the more common bases and acids. The lectures deal with the chemistry of the analytical reactions, special emphasis being given to the application of mass-action, ion-product, etc. The course must be continued through at least two quarters.

Prerequisite: Inorganic Chemistry.

6. QUANTITATIVE ANALYSIS. Three quarters. 4 h.

Elementary gravimetric and volumetric analysis, chemical calculations, etc. This course must be continued throughout at least two quarters.

Prerequisite: Course 4, or may be taken with Course 4.

10. ELEMENTARY ORGANIC ANALYSIS. Winter and spring quarters. 3 h.

A course in the separation and identification of pure organic compounds and mixtures, including ultimate organic analysis by combustion, etc.

Prerequisites: Courses 4 and 13.

11. SANITARY WATER ANALYSIS. Any quarter. 3 h. A course in the chemical and bacteriological examination of water with regard to its use for drinking purposes.

Prerequisite: Course 4.

13. ORGANIC CHEMISTRY. Three quarters. 3 h.

A study of the methods of preparation and the properties of the more important organic compounds. Special stress is laid upon the theories underlying the subject and the proofs of the constitution of most of the substances studied.

14. LABORATORY PRACTICE IN ORGANIC PREPARATIONS. Winter and spring quarters. 3 h.

A laboratory course in the preparation of typical aliphatic and aromatic compounds.

Prerequisite: Course 13, autumn quarter.

15. PHYSICAL CHEMISTRY. Three quarters. 3 h.

A lecture course presenting the conceptions of the modern physico-chemical theories concerning the states of aggregation of matter, solutions, thermo-chemistry, equilibria, chemical kinetics, electro-chemistry, and actino-chemistry.

16. PHYSICAL CHEMISTRY. Three quarters. 2 h.

A laboratory course supplementing Course 15, consisting of the determinations of densities, molecular weights, thermo-chemical and optical constants, conductivity of solutions, electromotive force, transference numbers, viscosity, surface tension, electro-chemical equivalents, transition points, etc.

18. FOOD ANALYSIS. Autumn and winter quarters. 3 h.

Lectures and laboratory.

A detailed course giving practice in the official and standard methods for the analysis of foods and the detection of adulterants.

Prerequisites: Courses 4 and 13.

19. DRUG ASSAYING: PHARMACEUTICAL TESTING. Autumn and winter quarters. 3 h.

A laboratory course giving practice in the official and standard methods for the identification, determination of purity, detection of adulterants, and assaying of official drugs.

Prerequisites: Courses 5 and 12.

20. DRUG ASSAYING: ORGANIC ANALYSIS. Autumn and winter quarters. 3 h.

A laboratory course in the qualitative and quantitative analysis of pharmaceutical and commercial organic products, such as alcohol, ethers, esters, glycerine, soaps, formalin, organic acids, etc.

Prerequisites: Courses 4 and 13.

21. DRUG ASSAYING: ALKALOIDAL ASSAYING. Spring quarter. 2 h.

Lecture and laboratory course.

A course consisting of all the most important alkaloidal assays and the separation and detection of the alkaloids.

Prerequisites: Courses 4 and 13.

22. ADVANCED FOOD ANALYSIS. Any quarter. 3 h.

An advanced laboratory course in the official and standard methods of food analysis.

Prerequisite: Course 18.

24. **ELEMENTARY BIOCHEMISTRY (PHYSIOLOGICAL CHEMISTRY).** Spring quarter. 5 h.

This course is designed primarily for students taking the combined College and Hospital Course for the B.S. degree or the Course in Home Economics.

Prerequisite: Course 13.

MICROSCOPICAL CHEMISTRY

1. **MICROCHEMICAL ANALYSIS.** 3 h.

A study of the use of the microscope and its accessories. Practice in the examination and analysis of inorganic substances, with reference to rapid qualitative methods and the analysis of minute amounts of material.

2. **MICROSCOPICAL EXAMINATION OF FOODS.** 3 h.

The microscopical examination of foods and condiments for the purpose of detecting deterioration, adulteration, and admixture.

Prerequisite: Course 1.

PHYSICS

1. **GENERAL PHYSICS.*** Three quarters. 4 h.

(a) Mechanics and Sound, autumn quarter. (b) Heat and Light, winter quarter. (c) Electricity and Magnetism, spring quarter.

Prerequisite: An elementary knowledge of plane trigonometry.

2. **EXPERIMENTAL PHYSICS.** One three-hour period per week. 1 h.

Quantitative laboratory work in the subjects indicated in Course 1 (a), (b), (c).

Prerequisite: An elementary knowledge of plane trigonometry.

* Course 1 is an elementary but thorough presentation of the fundamental facts, principles, and applications of modern physics. Although the subject matter is divided for convenience into quarters, students are expected to continue the study throughout the year.

The lectures are fully illustrated by apparatus and by experiments. The recitations are based upon both the lectures and textbook which is studied systematically in parallel with the lectures.

It is strongly recommended that course 2 be taken in parallel with course 1. When not so taken course 1 or its equivalent must precede.

SUMMER QUARTER

FACULTY, 1921

GEORGE NORLIN, Ph.D., LL.D., President of the University.

MILO G. DERHAM, Ph.D., Director of the Summer Quarter; Professor of Classics.

INSTRUCTORS FROM OTHER INSTITUTIONS

YOLANDA S. ALLEN, Instructor in Physical Education for Women, Leland Stanford Junior University.

EDLA V. ANDERSON, B.S., Instructor in Nutrition, University of Minnesota.

ELIZABETH M. BARKLEY, Pd.B., B.S., Instructor in Art, Lakewood High School, Cleveland, Ohio.

RAMA V. BENNETT, B.S., Instructor in Home Economics, Kansas State Normal School, Emporia, Kansas.

FRANCES E. BOCKIUS, A.B., Instructor in Physical Education, University of California.

CALVIN S. BROWN, D.Sc., Ph.D., Professor of Modern Languages and Literatures, University of Mississippi.

GEORGE R. COFFMAN, Ph.D., Professor of English, Grinnell College.

ABRAHAM COHEN, Ph.D., Associate Professor of Mathematics, Johns Hopkins University.

E. MERTON COULTER, Ph.D., Associate Professor of History, University of Georgia.

INA V. COWLES, B.S., Associate Professor of Domestic Art, Kansas Agricultural College.

EDGAR DAWSON, Ph.D., Professor of History and Political Science, Hunter College.

MAUDE C. DEMAINE, B.S., Director of Art, Colorado Woman's College.

GASTON DOUAY, A.M., Professor of the French Language and Literature, Washington University.

CHARLES A. ELLWOOD, Ph.D., Professor of Sociology, University of Missouri.

RUTH FREEGARD, Associate Professor of Domestic Art, Iowa State College.

JEAN L. GARRABRANT, Head of the Department of Art, Lakewood High School, Cleveland, Ohio.

W. FRANKLIN JONES, Ph.D., recently Dean of the College of Education, University of Southern California.

MARIAN LONG, Professor of Fine and Applied Arts, State College for Women, Denton, Texas.

WALTER E. MCCOURT, A.M., Dean of the Schools of Engineering and Architecture; Professor of Geology, Washington University.

LEWIS E. MEADOR, A.M., Professor of History, Drury College.

WILLIAM S. ROE, A.M., Principal of the High School, Colorado Springs.

WILSON M. SHAFER, A.B., Superintendent of Schools, Cripple Creek, Colorado.

GUY W. SMITH, Ph.D., Assistant Professor of Mathematics, University of Kansas.

ROBERT M. SMITH, Ph.D., Professor of English, Drury College.

LEWIS F. THOMAS, A.M., recently Assistant Professor of Geology, Washington University; Fellow in Geology, University of Chicago.

ALBERT B. WOLFE, Ph.D., Professor of Economics and Sociology, University of Texas.

INSTRUCTORS FROM THE UNIVERSITY OF COLORADO

FRANCIS RAMALEY, Ph.D., Professor of Biology.

JOHN D. FLEMING, A.B., LL.B., LL.D., Dean of the School of Law; Charles Inglis Thomson Professor of Law.

EDWARD JACKSON, A.M., M.D., Sc.D., Professor of Ophthalmology.

FRANK E. THOMPSON, A.B., Professor of Education.

ROSS C. WHITMAN, A.B., M.D., Secretary of the School of Medicine, Boulder Division; Professor of Pathology.

LAWRENCE W. COLE, Ph.D., Professor of Psychology.

FRED G. FOLSOM, A.B., LL.B., Professor of Law.

WILLIAM R. ARTHUR, A.B., LL.B., Professor of Law.

ARNOLD J. LIEN, Ph.D., Professor of Political Science.

ROBERT C. LEWIS, Ph.D., Director of Henry S. Denison Research Laboratory; Professor of Biochemistry.

JAY W. WOODROW, Ph.D., Professor of Physics.

IVAN E. WALLIN, Sc.D., Professor of Anatomy.

GEORGE F. REYNOLDS, Ph.D., Professor of English Literature.

HARRY M. BARRETT, A.M., Litt.D., Director of the College of Education; Professor of Education.

- FRANK W. CHACE, Mus.Doc., Director of the College of Music; Professor of Music.
- FRANK E. E. GERMANN, Dr. ès Sc., Professor of Chemistry.
- CHARLES E. KENNEDY, M.D., Director of Athletics; Professor of Physical Education for Men.
- MELVILLE BLACK, M.D., Associate Professor of Ophthalmology.
- C. HENRY SMITH, Ph.B., Librarian; Associate Professor of Bibliography.
- CARL C. ECKHARDT, Ph.D., Associate Professor of History.
- FRANK G. ALLEN, B.S. (M.E.) Associate Professor of Engineering Drawing.
- IVAN C. CRAWFORD, C.E., Associate Professor of Civil Engineering.
- GEORGE H. LIGHT, Ph.D., Associate Professor of Mathematics.
- PAUL M. DEAN, Ph.D., Associate Professor of Chemistry.
- WILLIAM B. PIETENPOL, Ph.D., Associate Professor of Physics.
- ALFRED H. SWEET, Ph.D., Associate Professor of History.
- WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.
- WALTER F. MALLORY, B.S. (M.E.), Assistant Professor of Mechanical Engineering.
- FRANCIS WOLLE, A.M., Assistant Professor of English Literature.
- ELIZA G. WILKINS, Ph.D., Assistant Professor of Classics.
- EDWIN B. PLACE, Ph.D., Assistant Professor of Romance Languages.
- JOHN W. RENNELL, Assistant Professor of Art.
- CHARLES A. HUTCHINSON, A.M., Assistant Professor of Engineering Mathematics.
- EDWARD R. MUGRAGE, A.M., M.D., Director of Laboratories (Denver); Assistant Professor of Pathology.
- HUGH M. KINGERY, Ph.D., Assistant Professor of Anatomy.
- CHARLES F. POE, A.M., B.S. (Phar.), Assistant Professor of Chemistry.
- HORACE B. VAN VALKENBURGH, M.S., Assistant Professor of Chemistry.
- BRYANT SMITH, A.M., LL.B., Assistant Professor of Law.
- SEVERANCE BURRAGE, B.S., D.P.H., Ph.D., Assistant Professor of Bacteriology.
- OTTO S. KRETSCHMER, A.M., M.D., Assistant Professor of Physiology and Pharmacology.
- FULTON H. ANDERSON, Ph.D., Assistant Professor of Philosophy.
- EMILY WOOD EPSTEEN, Acting Dean of Women (Summer, 1921); formerly Lecturer and Extension Instructor in Story Telling and Children's Literature.

- ELMORE PETERSEN, A.M., Acting Director of the Extension Division.
WILLIAM C. FINNOFF, M.D., D.Oph., Lecturer on Ophthalmology.
CHARLES M. MCCORMICK, E.E., Instructor in Electrical Engineering.
WILLIAM H. CRISP, M.D., D.Oph., Instructor in Ophthalmology.
MAUD E. CRAIG, A.M., Instructor in Classics.
GLADYS C. CURTIS, A.M., Instructor in Education.
WAYNE S. BEATTIE, B.S. (M.E.), Instructor in Mechanical Engineering.
CLARA HISCOCK BRACE, A.B., Instructor in Education.
HENRY M. SAYRE, Instructor in Accounting.
JOHN A. MCCAW, M.D., D.Oph., Instructor in Ophthalmology.
WILLIAM A. SEDWICK, M.D., Instructor in Ophthalmology.
HIRAM R. STILWILL, M.D., Instructor in Ophthalmology.
FRED R. DUNGAN, B.S., Instructor in Civil Engineering.
EDNA L. JOHNSON, A.B., Instructor in Biology.
EDNA D. ROMIG, A.B., Instructor in English.
ALEXANDER ELLETT, Instructor in Physics.
HERBERT C. HANSON, A.M., Instructor in Biology.
C. B. ASHCRAFT, Instructor in Wood Shop.
ALICE H. SULLIVAN, Ph.D., Instructor in Psychology.
FREDERICK E. BECKER, A.B., Instructor in Biology.
BLAINE GIBSON, B.J., Instructor in Journalism.
MABEL SMITH REYNOLDS, A.M., Instructor in English Literature.
GEORGE W. HULBERT, A.B., Instructor in Debating and Public Speaking.
ROSETTA B. WOLCOTT, A.B., Instructor in Romance Languages.
J. R. HOEY, Instructor in Vocational Training.
ROBERT NEILL, Instructor in Vocational Training.
LAURA L. REMER, Ph.B., Instructor in Education (Summer, 1921).
VALENTINE B. FISCHER, A.B., M.D., D.Oph., Instructor in Ophthalmology (Summer, 1921).
RICHARD W. WHITEHEAD, Instructor in Clinical Pathology (Summer, 1921).
EDYTHE N. THOESSEN, B.S., Assistant in Home Economics.
FLORENCE DODGE, Assistant in Education (Summer, 1921).
LELAND W. CRAFTS, A.M., Assistant in Psychology.
THEODORE J. KREPS, A.B., Assistant in Geology (Summer, 1921).
JULIA WOLAND, Pd.B., Assistant in Home Economics (Summer, 1921).
ANNE L. NOBLE, Assistant in Education (Summer, 1921).
ELIZA R. PENDERY, Assistant in Education (Summer, 1921).

GENERAL STATEMENT

PURPOSE AND ORGANIZATION

The Summer Session was established in 1904; a regular summer quarter was organized in 1919. Courses in the Denver Division of the School of Medicine were first offered in 1912.

The summer quarter serves the needs of the following classes of students: (1) teachers and others who are not able to attend during the academic year; (2) regularly matriculated students who desire to supplement the work of the regular session; (3) students whose entrance preparation is deficient; (4) those who wish to review or extend their acquaintance with certain subjects without credit.

ADMISSION

The admission requirements for the summer quarter are the same as for the regular session. See pages 27-34. Credentials should be presented to the Registrar before the time of registration. Advanced standing will not be given until a student has completed satisfactorily one quarter in this University. Teachers may be admitted as special students. Students who elect only courses which do not count toward a degree in the University may also be admitted as special students. Special students are not required to present credentials. If they later fulfill the entrance requirements they may become candidates for degrees.

It should be noted, however, that no graduate credit is given except to persons whose credentials have been previously accepted for admission to the Graduate School.

An auditor's ticket is issued to those who wish to attend courses or lectures without examination or formal credit.

RELATION OF THE SUMMER WORK TO THE COLLEGE OF EDUCATION

The summer quarter constituency is largely made up of superintendents, principals, and teachers. In recognition of this fact there are teachers' courses in many departments and other courses conducted with a view to emphasizing educational methods and principles. Ample provision is made for those desiring to take work

counting toward the thirty hours of professional training prescribed by the Colorado Certification Law.

UNIVERSITY EXTENSION DIVISION

The University Extension Division provides an opportunity to students who cannot attend the University during the regular academic year to continue work begun in the Summer Quarter. Announcement of University Extension courses may be obtained from the Registrar of the University.

PUBLIC LECTURES

Open lectures are given every afternoon or evening each week, affording students the opportunity of hearing speakers of eminent attainments in educational, literary, and scientific lines.

ADVANTAGES OF CLIMATE AND SURROUNDINGS

The climate and surroundings of Boulder afford exceptionally favorable conditions for summer study and recreation. The days are never uncomfortably warm, the nights are always cool. The air is dry and invigorating. On every side the scenery is varied, grand, and beautiful.

EXERCISE AND RECREATION EXCURSIONS

The University gymnasium, the tennis courts and athletic field are open for the use of the students of the Summer Quarter. The region about Boulder offers abundant opportunities for mountain climbing. There are also conducted excursions each week, for students and faculty, to points of interest.

UNIVERSITY CAMP

The University during the Summer Quarter maintains a permanent camp at Arapahoe Falls, about twenty-five miles from Boulder, in one of the most attractive regions in the Rocky Mountains. Camping facilities by the day, week, or month, are provided at cost. Trips will be arranged for each week end and can be taken for a total cost of from four to six dollars.

FEES

The tuition fee, which does not vary with the number of courses taken, is \$15.00 each term for residents of Colorado; \$18.00 each term for non-resident students. The tuition fee for the course in

Ophthalmology at Boulder and Denver is \$100.00. For the tuition in short courses in Medicine, see under the descriptions of those courses. A registration fee of \$2.00 is paid once by every student for each quarter or for a single term. Students electing courses in Education pay a library fee of \$1.00 for each course requiring duplicate books. Laboratory fees to cover the cost of materials are charged in certain courses as stated in the descriptions of such courses. For those who wish to attend courses without examination or formal credit, an auditor's ticket is issued at the regular tuition rate.

Admission to classes is restricted to duly registered students and to those holding auditors' tickets.

ACCOMMODATIONS

The price of regular board runs from \$6.00 to \$9.00 a week. Many reduce this price by boarding at the cafeteria. Rooms accommodating two persons may be obtained at \$5.00 and up per week. Living expenses may be reduced very materially by clubbing together or doing light housekeeping. Cottages and light housekeeping rooms are, however, limited in number and should be obtained not later than June 9. As far as possible, all students for the first term should arrive in Boulder in time to complete arrangements by June 11. A Housing Committee, consisting of members of the faculty, have entire charge of living accommodations during the summer. A request for information addressed to the Registrar will receive the prompt attention of this Committee. Reservations in advance by making a deposit, or by selecting from a list are not as a rule satisfactory. Students may rest assured that under the supervision of the Housing Committee ample living accommodations will be available.

REDUCED RAILWAY RATES

Low excursion rates for the summer may be given by railways from eastern and southern points to Colorado. Those who wish to take advantage of these rates are advised to apply to their local agents for official information. In general, the rate to Boulder is the same as to Denver.

SUMMER QUARTER, 1921

The first term of the 1921 summer quarter opens June 13, and closes July 20; the second term opens July 21, and closes August 27. It is desirable that students register for the first term June 10 or 11.

Final examinations are held July 18-20 for the first term, and August 26-27 for the second term for all students who wish credit certificates for their work.

Courses in Arts and Sciences, in Engineering, in Medicine, and in Law are offered at Boulder; courses in Ophthalmology, in the Denver Division of the School of Medicine.

CREDITS

Courses carried through the whole quarter carry the same credit as similar courses in any other quarter. Courses carried through one term only, carry half credit.

ADDITIONAL INFORMATION

The Announcement of the Summer Quarter will be sent upon request.

COURSES*

COLLEGE OF ARTS AND SCIENCES AND GRADUATE SCHOOL

Courses are offered in the following departments:

Americanization, Anatomy and Sanitary Science, Art, Bacteriology, Biochemistry, Biology, Chemistry, Classics, Commerce, Drawing and Public School Art, Economics and Sociology, Education, English, Geology and Geography, Germanic Languages, History, Home Economics, Journalism, Library Science and Practice, Mathematics, Music,† Ophthalmology, Philosophy, Physical Education, Physics, Political Science, Psychology, Public Speaking and Reading, Romance Languages, Story Telling.

COLLEGE OF ENGINEERING

Courses are offered in the following departments:

Civil Engineering, Electrical Engineering, Mechanical Engineering, Shop Work, General Engineering Drawing, Engineering Mathematics.

* For description of courses see Announcement of the Summer Quarter.

† For description of Graduate courses in Ophthalmology, see special announcement of the Department of Ophthalmology.

SCHOOL OF MEDICINE

Courses are offered in the following subjects:

Anatomy, Bacteriology, Biochemistry, Blood Chemistry, Clinical Laboratory Methods, Advanced Pathology, Short Course for Practitioners in Medicine, Technique of the Wassermann Test, and Ophthalmology.

SCHOOL OF LAW

Courses are offered in the following subjects:

Common Law Pleading, Contracts I, Property I, Equity, Jurisdiction I and II, Constitutional Law I, Mines and Mining, Wills, Irrigation and Water Rights, Use of Law Books, Damages, Domestic Relations.

ELEMENTARY AND HIGH SCHOOL COURSES

Elementary Courses.

University Training School, corner College Avenue and 11th Street.

First Term, June 13 to July 20.

Second Term, July 21 to August 27.

High School Courses.

State Preparatory School, corner Pearl and 17th Streets.

June 13 to July 22.

These Schools are conducted by the College of Education of the University of Colorado and the Boulder Board of Education as ungraded schools. Instruction is offered to pupils of any grade, from the first to the twelfth, in all the usual elementary and high school subjects. This meets the needs of those who lack some of their college entrance credits; of those who may have failed of promotion; of those who are passing into a higher grade, but require help in some of their more difficult subjects; of those who are able to do more rapid work; and of those who wish extra work.

Not only is great care given to subject-matter, but all pupils receive special attention with a view to improvement in habits and methods of study; all are taught as far as possible how to learn, especially how to work at home.

For the younger children, three to seven years of age, there is a kindergarten school, conducted as far as is feasible, in the open air. The exercises are calculated to give the pupils good interests and make them self-helpful.

REGISTRATION

Registration will take place from 8:30 to 11:30 a. m., June 10 and 11, Room 17, Arts Building, University of Colorado, or at the Schools.

FEES

The fees are as follows:

Kindergarten—\$5.00 for the course. Elementary School Subjects, First to Fourth Grades—\$3.00 per course. Fifth to Eighth Grades—\$4.00 per course. High School Courses—\$8.00 for one course; \$15.00 for two courses.

ADDITIONAL INFORMATION

Further information about these Schools will be given by the Director of the College of Education.

UNIVERSITY EXTENSION DIVISION

FACULTY

GEORGE NORLIN, Ph.D., LL.D., President of the University.

*LORAN D. OSBORN, Ph.D., Director; Professor of Sociology.

ELMORE PETERSEN, A.M., Acting Director; Secretary of the Bureau of Business and Commercial Development.

ALMA GABRIEL, A.B., Secretary of the Bureau of Correspondence Instruction.

CHARLES I. MADISON, Ph.B., Secretary of the Bureau of Community Organization.

CHARLES C. BROWN, A.B., Secretary of the Bureau of Class Instruction.

DOROTHA E. TALBERT, Secretary of the Bureau of Visual Instruction; Secretary of the Bureau of Americanization.

GEORGE C. MANN, A.B., Secretary of the Bureau of Vocational Instruction; Vocational Instructor.

C. HENRY SMITH, Ph.B., Librarian of the University; Secretary of the Bureau of Library Extension.

†M. F. BEESON, Ph.D., Superintendent Western Colorado District
ADA B. PORTER, Office Manager.

The Faculty includes also Professors and Instructors in the various University departments who give Extension courses or lectures, together with special Extension Instructors appointed to conduct classes in various centers throughout the State.

NON-RESIDENT INSTRUCTIONAL STAFF

R. J. WALTERS, A.B., *Rocky Ford*, Extension Instructor in Educational Measurements.

* On leave of absence, 1920-1921; resigned February 15, 1921.

† In cooperation with Colorado State Teachers College and Colorado State Normal School.

- O. B. DRAKE, A.B., B.S., *Canon City*, Extension Instructor in Public School Administration.
- CAMILLE E. WERLING, A.M., *Sterling*, Extension Instructor in French.
- MRS. WILLIA D. STEVENS GIRAULT, A.M., *Sterling*, Extension Instructor in Russian Literature.
- J. F. KEATING, *Pueblo*, Extension Instructor in The Constitution and Its Making.
- W. D. BLAINE, *Pueblo*, Extension Instructor in Geography of Latin America.
- JAMES P. ESKRIDGE, A.M., *Florence*, Extension Instructor in Biology and Beginning Spanish.
- JESSIE A. HAMILTON, *Denver*, Extension Instructor in Junior High School.
- G. W. ALLEN, *Alamosa*, Extension Instructor in Educational Tests and Measurements.
- SISTER HILDEGARDE, A.B., *Pueblo*, Extension Instructor in Science of Public Education.
- S. W. ANDREWS, A.B., *Walsenburg*, Extension Instructor in Educational Measurements.
- MRS. MARY L. MCINTYRE, *Pueblo*, Extension Instructor in Spanish.
- H. M. CORNING, *Trinidad*, Extension Instructor in Educational Tests and Measurements.
- N. J. RICE, *Brighton*, Extension Instructor in Educational Measurements.
- E. C. DILLY, *Lamar*, Extension Instructor in Educational Measurements.
- ARTHUR J. CRAIG, Pd.B., *Erie*, Extension Instructor in Mining Mathematics.
- CHARLES BILLINGTON, *Erie*, Extension Instructor in Gases and Ventilation.
- JULIA B. FRANKLE, A.B., *Lafayette*, Extension Instructor in Mining Mathematics.
- C. A. WOLFF, *Lafayette*, Extension Instructor in Mining Mathematics.
- DAVID HENDERSON, *Lafayette*, Extension Instructor in Gases and Ventilation.

G. P. McLAUGHLIN, A.B., *Frederick*, Extension Instructor in Mining Mathematics.

ALEX ALLENDER, *Frederick*, Extension Instructor in Gases and Ventilation.

E. J. STADER, *Frederick*, Extension Instructor in Mine Electricity.

DORIS ADAMS, *Frederick*, Extension Instructor in Mining Mathematics.

GEORGE B. DEVENISH, Extension Instructor in Mining Mathematics.

V. C. DOUGHERTY, Extension Instructor in Mining Mathematics.

THOMAS GIBBY, *Superior*, Extension Instructor in Gases and Ventilation.

B. H. ALLSWORTH, *Primero*, Extension Instructor in Shop Mathematics.

ERHARDT A. FROESE, B.S., *Sterling*, Extension Instructor in Mathematics.

C. CAMPBELL, *Primero*, Extension Instructor in Shop Mathematics.

GENERAL STATEMENT

The Extension Division was organized in 1912. It aims to make the campus of the University coextensive with the State, in keeping with the new idea that a state university exists for all the people and not for a favored few alone.

The various departments of the University have at their disposal material that can be of great value in the development of the resources of the state. The Extension Division endeavors to connect the University departments with the people who wish to utilize these resources. This is done through two main departments, with various subdivisions, as appears in the following outline of Extension activities:

I. Department of Extension Instruction:

Correspondence Instruction.

Class Instruction.

Vocational Instruction.

Lectures and Visual Instruction.

II. Department of Public Service:

Community Organization.

Business and Commercial Development.

Americanization.

Library Extension.

Municipal Reference.

DEPARTMENT OF EXTENSION INSTRUCTION

The Department of Extension Instruction offers formal courses by correspondence and in classes, to such persons as wish to engage in systematic study without leaving home or giving up their regular occupations.

Both academic and vocational courses are given. The academic courses cover a large part of the regular curriculum of the College of Arts and Sciences, and, in general, receive credit which applies toward a university degree. Courses in secondary education are also offered, particularly for the benefit of those beyond the high school age or living where a high school is not accessible.

The vocational courses are intended more especially for men and women in offices, stores, and industrial life who desire to increase the value of their work and to gain a better understanding of its correlation with the business world in general. The daily task and the study of the educational principles underlying it thus supplement each other. The vocational courses are granted recognition by means of a University Extension certificate.

A course of study of an informal nature has been arranged for mothers. This course covers a period of two years, taking the child from the time of conception up to the second year. The registration fee is nominal so that the course may be available to all mothers.

Programs for clubs and organizations are furnished, upon request. Programs can be prepared along any desired line, if sufficient time is allowed, but the following are available at any time: Various periods of English and American Literature, with typical readings; Literature of the Great War; The Effect of the War on Education; Woman's Place in Reconstruction; The League of Nations; The Peace Conference, and the Nations Affected by It.

Lectures by members of the University faculties and others are arranged, separately and in courses, covering a wide range of subjects. Stereopticon slides and picture films of an educational character are furnished, at cost of transportation, for use in the public schools and in entertainments that are of interest to both pupils and parents.

CORRESPONDENCE INSTRUCTION

UNIT OF WORK AND UNIVERSITY CREDIT.—When the course taken by correspondence is of University grade and college entrance requirements have been fulfilled, it is granted University credit of equal value to the same course taken in residence. The number of assignments, or lessons, for the various courses will vary with the subject matter of the course, six assignments being the minimum requirement for an hour's credit. An "hour's" credit means the equivalent of one recitation period per week throughout one quarter. A two-hour course means one in which the class recites two hours a week for a quarter and the credit given is two hours. One-fourth of the work for the A.B. degree may be done in the Extension Division.

INSTRUCTORS.—Correspondence courses are prepared and carried on under the immediate supervision of members of the University faculty.

REGISTRATION.—Students may register by calling at the office of the University Extension Division, or application blanks will be sent free of charge to anyone interested in correspondence instruction. This application blank should be carefully filled out and returned to the Bureau of Correspondence Instruction, University Extension Division, with the fee for the course. The Extension Division reserves the right to reject any registration, but the student will be notified at once if his registration is not accepted. As soon as the registration is accepted, the first lessons will be sent to the student, together with the necessary instructions, and material for beginning the course.

METHOD OF INSTRUCTION.—As soon as the student's registration is completed, the first lessons, which are on file at the Extension office are sent to him. The student should then prepare his first assignment and send it to the Extension Division in envelopes furnished for that purpose. The assignment is then turned over to the proper instructor, who in turn corrects it and returns it to the Extension office. The corrected lesson is then sent to the student, and the suggestions and corrections made on this first paper should be studied very carefully before the second assignment, or lesson, is sent. The

student may begin his course at any time and work as fast as he wishes. A year's time is allowed in which to complete a course. When the course is completed, the student should send to the Extension Division the name of some person engaged in educational work who is willing to conduct the examination.

WORK PARTLY BY UNIVERSITY EXTENSION, FOR MASTER OF ARTS DEGREE.—By written consent of the major department concerned, filed with the Dean of the Graduate School, any person eligible to candidacy for the A.M., who has done satisfactory graduate work during one entire summer quarter of the University, except as noted below, may be admitted to candidacy for a Master's Degree upon the following terms: The candidate must conform to all of the regulations for candidate of the Master's Degree with exception of the requirement of residence for one year. During not less than two terms in two successive summer quarters, the candidate must pursue a course of advanced study arranged and approved by the department of the University in which his major subject is to be taken. During the included two years between the first and third of these summer quarters while not in residence at the University, he must pursue through the Extension Division, work in continuation of, or collateral to, this major subject, to the extent of fifteen of the 45 hours required for the Master's Degree. The requirement of attendance at a summer quarter before graduate work is permitted under this plan, may be waived with the consent of the department involved, in the case of alumni of this University or of Extension classes conducted by members of the University faculty. This does not excuse the candidate from residence at the University during at least four summer terms, each consisting of half a quarter. (See also page 199.)

FEES.—Extension fees are on an entirely different basis from regular University fees. Scholarships, therefore, do not apply. Fees for correspondence work are computed on the basis of credit hours, \$3.00 being charged for each quarter hour's credit, with a 25 per cent discount on any part of the fee that is above \$20.00. The entire fee should be paid at the time of registration, unless different arrangements have been made with the Extension Division. Refunds are made in those cases where the University requires the student to drop the course.

CLASS INSTRUCTION

ORGANIZATION AND MEETINGS.—University Extension classes are organized in places where a group of persons wish to unite in the study of some subject under university direction. Classes may be organized for teachers, women's clubs, business men, industrial workers, or for any group of people having a common interest. Upon request from such a group the details of organization will be completed by correspondence or through a field organizer.

CREDIT.—Where University credit is involved, the class usually holds a double-period session (100 minutes) each week during the school year, or for any part of the year. The work approximates as closely as possible that taken in residence—in the quality of work done, the conduct of the courses, the time required of the student for preparation, and the amount of credit given.

Upon the completion of such a course and the passing of a satisfactory examination, the work will receive the same credit as a similar course taken at the University, namely, six hours for the academic year, or three hours for half a year. If the class prefers, sessions may be held less frequently than once a week, or for a shorter period than 100 minutes; in which case credit will be allowed in proportion.

INSTRUCTORS AND CLASS LEADERS.—The classes are conducted under the supervision of the heads of the appropriate departments at the University, but with different arrangements in different places so far as local leadership is concerned:

1. With a University instructor, when the class is located in a town near the University.
2. With a local instructor of university qualifications, when the class is too far away to be reached by an instructor from the University.
3. With a class leader, when a group of students may wish to unite for study where no qualified instructor is available in the subject desired. In this case, one of the members of the class is appointed class leader, and the course is conducted directly with the University by correspondence.

FEES.—The fees for class instruction in academic courses are \$10.00 per student for a class meeting weekly for a double period

throughout the school year (six credits, in credit courses); or \$5.00 for such a class conducted half the year (three credits, in credit courses); or in the same proportion for classes meeting less frequently or for a shorter recitation period.

The fees for instruction in business and technical classes are at the uniform rate of fifty cents per lesson, making a course of ten lessons cost each student \$5.00; sixteen lessons, \$8.00, and so on in the same proportion.

EXTENSION COURSES

Courses are offered in the following departments: Art, Education, Business, Engineering, English, French, History, Biology, Literature, Psychology, Spanish, Latin, Physics, Mathematics, Economics, German, Philosophy, Mothers' Courses.

Students interested are requested to write for a special bulletin containing details concerning courses offered.

DEPARTMENT OF PUBLIC SERVICE

The Department of Public Service deals with those more informal phases of public education and community welfare which cannot be adequately met by courses of formal instruction.

Assistance is given to communities throughout the State, upon request, in solving the new problems that have arisen in our complex modern life. Community conferences are held, involving a preliminary study or social survey of the town, a cooperative conference program of three or four days' duration, and a community exhibit.

Through the Department of Education, cooperating with superintendents and groups of teachers, a comparative study is made of school systems and the educational principles involved, and other kinds of assistance are rendered to public schools.

Through the University Library, books and package libraries are sent to high schools, clubs, and individuals. Inquiries for information are answered from the resources of the library and the various departments of the University. In writing for material from the library, address: University of Colorado Library, Boulder, Colo.

Merchants' Short Courses are conducted, either in connection with conventions of business men, or at sessions meeting for this special purpose. Each course covers a period of three or four days and treats the various aspects of modern business problems.

Business surveys are made with the purpose of determining the commercial resources and trade possibilities of a community. Classes in business subjects are organized and conducted and cooperative work is undertaken with commercial clubs. Stores and business firms are visited for the purpose of rendering individual assistance in meeting their business problems, and the results are discussed with the interests concerned.

Americanization work is carried on with various foreign groups throughout the State. Classes in English and Citizenship, American History, and Government are formed, and an attempt is made to assist the foreigner in his efforts to become an American citizen.

Information concerning municipal interests and problems and comparative data concerning various municipal enterprises are furnished for the convenience of city officials.

Bulletins are published from time to time making available to the public the results of investigations carried on by members of the University faculties.

GRADUATES

DEGREES CONFERRED, JUNE 14, 1920

GRADUATE IN NURSING

Geneva A. Barnsley
Marguerite P. Brueshaber
Ruth Colestock
Josephine Cowgill
Gladys Dickey

Frances Willard Dodson
Helen Grill
Gerda Marie Jacobson
Hester Marian Rohwer

PHARMACEUTICAL GRADUATE

Estel Elaine Bacon
Charlotte Hollingsworth Burgess

Helen Georgia Myers
Helen Simpson

PHARMACEUTICAL CHEMIST

Hazel Dell Jaquiss
Faye Frances O'Brien

Margaret Catherine Swisher

BACHELOR OF SCIENCE (Ch.E.)

*Ernest Glenn Campbell
Myron Joseph Burkhard
†Frehn Hutchins Catterson
Donald Chaney Coulson

Paul Dungan
Ernest F. Hyatt
Hiram Bradley Wolff

With Honors

Arthur Edwin Grove
Edward M. Jones

Vernon Heber Sanders

BACHELOR OF SCIENCE (M.E.)

Harold William Chandler
Robert William Fox Hamilton
Harry Hirsch Herman

Conrad Marcellus Iverson
Hyman Levine
Robert Hugh Taylor

With Honors

Harry Clarence Morehouse

With Special Honors

Ralph Marcus Douglas Hill

* These men completed their courses in the Summer Quarter of 1919, and were granted their diplomas as of the class of 1919 because of their war service.

† These men whose University work has been interrupted by military service, will not complete their courses until the Summer Quarter of 1920, but on completion of the requirements will be granted their degrees as of the class of 1920.

BACHELOR OF SCIENCE (E.E.)

*Jesse Raymond Brock
*George Gustav Kretschmar

*Arthur William Nord
*Terryl Clarence Smith

†Reuel Stillman Alford
Gano Reeder Baker, Jr.
Theodore Marlowe Foulk
Arnold Adolph Hansen
Harold Martin Kelsey
†Francis Payne Kerr

Donald Hugh Rymer
†Felix Ward Scudder
Ben George Tandy
†Russell Lee Whitney
Carl E Wood

With Honors

Lee James Murray

†Arthur Howard Warner

With Special Honors

Kenneth Guy Crispelle
Henry Anthony Page

Harold Frederick Rice

*Lester B. Johnson

BACHELOR OF SCIENCE (C.E.)

James Ogden Ball
Earl Alfred Bartlett
John Quincy Jewett

Algon Benjamin Johnson
Lou Alta Melton
William John Steinmetz

With Honors

Harold Allen
Philip George Apel
Elsie Eaves

Eugene Cochrane Harvey
Raymond William Lind
Caleb Stone

With Special Honors

Edwin Gilbert Carpenter
Frederick Delmar Creglow

George Sherwood Richardson

BACHELOR OF SCIENCE (Home Economics)

Francis Daily

Faith Winifred Johnson

BACHELOR OF ARTS

Henry B. Abbett
Mary Lovisa Abrahamson
Lloyd Ackerman
†Elmer Verdon Atkins
†Gladys Baxter
Dean Nolon Beacom
Rama Bennett
Edith Bimson
Arthur A. Birdick
Margaret May Bohn
Warren B. Bragdon
Robert Breckenridge
Carl Bryant
°Robert E. Burke

Meda Carley
†Beulah Christopher
Ruth Colestock
†Margaret Eleanor Curry
Marion Beatrice Dale
Ralph Wesley Danielson
†Rachel I. Denslow
William Edwin Dildine
†Frances Selina Donehue
†Doris Downs
†Alice Ladd Ebert
Priscilla Henrietta Eddy
Marjorie Edgar
Alex McFarlane Ferguson

* These men completed their courses in the Summer Quarter of 1919, and were granted their diplomas as of the class of 1919 because of their war service.

† These men whose University work has been interrupted by military service, will not complete their courses until the Summer Quarter of 1920, but on completion of the requirements will be granted their degrees as of the class of 1920.

‡ These candidates receive also the Bachelor's Diploma in Education.

° This candidate receives also the Bachelor's Diploma in Commerce.

Helen Fleming
 Helen Jessie Griffith
 Evangeline Hauck
 *Stella Grace Hawkyard
 Victor J. Hendrickson
 Henry Lawrence Hinkley
 *Elizabeth Hummel
 Helen Husted
 Mary Ruth Johnston
 †Samuel Etnyre Knowles
 Donald Ryder Knowlton
 Theodore J. Kreps
 Elsie Muriel Lyster
 *Alice Irene McCormac
 Marian Mason
 Ethel R. Mellow
 *Freda Meyer
 Alice Maude Michael
 Glenn E. Mills
 J. Russell Murphy
 George Waverly Nairn
 George R. Nelson
 *Helen O'Dea
 Regina Catherine O'Malia
 George Penney
 *Marguerite Shirley Peyton
 Jo Pittman

Frank Gordon Powars
 DuVal Prey
 Doris Roberts
 *Lourie Royce
 Ray Walter Saunders
 *Laura Selvy
 Harriet Shaw
 Helen Roberta Sloan
 Bernice Smercheck
 J. Birch Snider
 Helen Solt
 Elizabeth Thompson
 Donald H. Tippet
 Ralph N. Traxler
 *Lelia Trolinger
 *Virginia Watt
 †James Herschel White
 Vivian White
 Wilford Lenfestey White
 Loretta Seattle Wiggins
 Frank J. Wilkin
 John Wittemyer
 Clayton Samuel Wolf
 Lyle Havener Wolf
 Agnes Mack Wright
 Laurence E. Wright

Cum Laude

Eulalia Bell
 Francis Clarke
 Marjorie Schoppe Crouch
 *Gertrude M. Drach
 Katherine Frances Duce
 *Margaret Ella Gruver
 *Effie Harvey
 *Janet Lillian Holcomb
 *Sada Kiker
 Rose Lind
 *Maud V. Macgregor

Herbert W. Martin
 *Mabel Pearl Merryfield
 Harry M. Mulvihill
 Charleen Newman Richardson
 Grace Adelbert Sandhouse
 Ruth Slane
 Mary Ella Updike
 Millie Bird Vandeburg
 Catherine Vowell
 *Isabel Scott Young

Magna Cum Laude

Blanche Bailey
 *Dorothy Bair
 Harold F. Birnbaum
 Frances Donaldson
 Nancy Amelia Fleming

Sarah Ginther
 *Majorie Skiff
 Ida Swayne
 Irma Tarkoff

BACHELOR OF LAWS

Charles Chenault Adams
 Wilbur Wolf Adams
 John Bell Barnard
 Thomas George Burke
 James Parker Deatherage
 John Phillip Helman
 Thomas Edward Higgins

John A. McCann
 José Morente
 Erskine Reed Myer
 Frederick William Sanborn, Jr.
 William Robert Shaw
 Mortimer Francis Sullivan
 Blaine Bee Wallace

* These candidates receive also the Bachelor's Diploma in Education.
 Clay Celia Watkins, A.B. 1914, also receives the Bachelor's Diploma in Education.

† These candidates receive also the Bachelor's Diploma in Commerce.

DOCTOR OF MEDICINE

Floyd Arthur Alcorn
Cyrus Walfred Anderson
Walter Leo Bach
Herbert Ong Calhoun
Henry Lewis Cooper
William Pope Gasser
Harold William Gregg
Clyde Ernest Harner
Gerrit Heusinkveld

Harry Arthur Johnson
Otto Sheibel Kretschmer
Erle Edward Langdon
Roderick James McDonald, Jr.
Casper Markel
Robert Franz Maul
Joseph Fredric Prinzing
Thaddeus Perce Sears

MECHANICAL ENGINEER

Rogers Allen Fiske
B.S.(M.E.) 1914, University of Colorado.

MASTER OF SCIENCE

Vincent Charles Perini, Jr.
A.B. 1919, University of Colorado.
Kenneth Mack Willson
A.B. 1919, University of Colorado.
Matthew James Wilson, Jr.
B.S. in Mining Engineering 1918, Pennsylvania State College.

MASTER OF ARTS

Robert James Campbell
A.B. 1902, Northwestern University.
Alex McFarlane Ferguson
A.B. 1920, University of Colorado.
Otto Sheibel Kretschmer
A.B. 1913, Catholic University of America.

MEDAL FOR DISTINGUISHED SERVICE

George Elbert Burr

MASTER OF LETTERS (*honoris causa*)

James H. MacLennan William MacLeod Raine

DOCTOR OF SCIENCE (*honoris causa*)

Regis Chauvenet

DOCTOR OF LAWS (*honoris causa*)

Charles Edward Merriam

CATALOGUE OF STUDENTS

COLLEGE OF ARTS AND SCIENCES

SENIOR CLASS

NAME	RESIDENCE
Ahlin, Margaret	Greeley
Alenius, Alfhild Margaret	Denver
Anderson, Eugene Newton	Boulder
Anderson, Hazel Beatrice	Pueblo
Bair, Orlena	Denver
Barnhart, Lucy Persis	Denver
Barrett, Josephine Rose	Boulder
Bean, Helen DeKalb	Boulder
Becker, Frederick Edward	Fort Morgan
Benson, Lillian Elvira	Boulder
Blackburn, Lois Delight	Boulder
Bowler, Mary Angela	Denver
Breyfogle, Amy Louise	Boulder
Breyfogle, Eva May	Boulder
Burke, Mary Louise	Elyria, Ohio
Burrows, Alice	Denver
Chang, Doo	Shanghai, China
Chapman, Sara	Monte Vista
Clark, Andrew Giles	Boulder
Cobbey, Lillian West	Denver
Cole, Rilla Carol	Denver
Craig, Elberta Louise	Boulder
Eaton, Mary Phyllis	Boulder
Garrett, John W.	Boulder
Geltz, Helen Marie Wann	Boulder
Goebel, William Rudolph	Boulder
Gorce, Lila May	Boulder
Goudie, Jessie Mae	Aurora
Hair, Roxana Cheedle	Denver
Hardy, Mary Madeline	Denver
Henderson, Martha	Fort Collins
Hodge, Fleeta Clarissa	Boulder
Hodge, Inez Fae	Boulder
Hopkin, Eunice Maxwell	Denver
Howell, Homer Roberts	Trinidad
Jones, Margaret Ruth	Littleton
Knox, Margaret Matilda	Denver
Langley, Luverne Gove	Denver
Lavington, Charles Stephen	Flagler
Lester, Katherine Wheeler	Boulder
Lilly, Evelyn Idonia	Cripple Creek
McNeece, Ann	Leadville
MacArthur, Emma Glen	Monte Vista
Maxwell, Ucecil Seymour	Denver
Mentgen, Frances Marguerite	Sterling
Merrill, Richard Lee	Lamar
Moncrieff, James Elwood	Boulder
Morning, Elizabeth	Denver
Myers, John C.	Greeley
Noxon, Frances Clare	Boulder
Parsell, Bertha May	Canadian, Texas
Patton, Marshall Davis	Boulder
Putcamp, Anna Elizabeth	Denver
Reynolds, Eleanor Ruth	La Junta
Reynolds, Henry Etta	Boulder
Ridgeway, Arthur	Boulder

NAME	RESIDENCE
Rose, Clarence William.....	Boulder
Sherrill, Lena Patricia.....	Denver
Shoaf, Dorothy Noyes.....	Taylor, Texas
Short, Edna Louise.....	Denver
Simpson, Frances.....	Fowler
Smercheck, Lillian Dorothy.....	Boulder
Smith, Irving Stanton.....	Pueblo
Smith, Margaret Virginia.....	Grand Junction
Sowter, Grace.....	Great Falls, Montana
Spencer, Richard Carleton.....	Boulder
Strange, Helen Amelia.....	Steamboat Springs
Taylor, Overton Hume.....	Boulder
Terwilliger, Mary Elizabeth.....	Boulder
Vawter, Viola.....	Fowler
Wellman, Harry O.....	Boulder
Williams, Beatrice Emily.....	Denver
Young, Mildred Arline.....	Boulder

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JUNIOR CLASS

NAME	RESIDENCE
Adams, Frank Charles.....	Denver
Adams, Jane.....	Boulder
Akers, Byron Lionel.....	Denver
Alexander, Clark Taylor.....	Flagler
Alexander, Harold Everett.....	Castle Rock
Anderson, Georgia Christina.....	Denver
Andrew, Warren Melvin.....	Boulder
Andrews, E. Philip.....	Boulder
Barney, Horace Justin.....	Manzanola
Baxter, Julia Eileen.....	Longmont
Bean, Hildred Elizabeth.....	Boulder
Bell, Rodney Stanford.....	Glenwood Springs
Belser, Ernestine M.....	Boulder
Blade, Frank Joseph.....	Boulder
Blair, Harrison D.....	Sterling
Blosser, Edith Belle.....	Boulder
Blosser, Iva Caroline.....	Boulder
Boaz, Louise McLain.....	Denver
Bohn, Doris Lucile.....	Longmont
Breitenstein, Jean Sala.....	Boulder
Brown, Bertha.....	Denver
Brown, Lawrence Tracy.....	Brighton
Buchheim, Walter August.....	Leonardville, Kansas
Buck, Dorothy.....	Monmouth, Illinois
Burch, Neal.....	Hayden
Button, Doris Edwina.....	Denver
Callahan, Alice Beatrice.....	Madison, Wisconsin
Campbell, Myra.....	Arvada
Carmody, Ruth.....	Denver
Carpenter, Mary Helen.....	Pueblo
Cawood, Verne Carroll.....	Boulder
Chase, Josephine Lula.....	Bakersfield, California
Christensen, Bryant Elliott.....	Boulder
Cinnamon, Elsie.....	Boulder
Cochrane, Walter Clifton.....	Boulder
Cole, Julia Moore.....	Denver
Collins, Dell-Margaret.....	Colorado Springs
Connell, Mary Ellen.....	Grand Valley
Crawford, Gladys.....	Grand Junction
Daily, Ruth Bridgid.....	Boulder
Dake, Ruth Norma.....	Pine
Darling, Herrick Hiram.....	Fort Collins
Davis, Florence Mary.....	Durango

NAME	RESIDENCE
Davis, H. Henry McVey.....	Boulder
DeMotte, Oliver	Boulder
Dimm, Florence Louise.....	Denver
Doherty, Muryl Marvin.....	Boulder
Dole, Mary Ellen.....	Boulder
Dolphin, Opal Veronica.....	Ryan, Iowa
Douglas, Frederic H.....	Evergreen
Doyle, Frances	Denver
Duggan, Helen Gordon.....	Denver
Duke, Jean	Hotchkiss
Dunn, Hobart Reimer.....	Milliken
Eckels, Margaret	Boulder
Edwards, Eunice	Victor
Elias, Richard Ralph.....	Boulder
Elliott, Ruth	Merino
Emery, Rebecca	Pueblo
Endicott, Alice.....	Canon City
Evans, Catharine Bothwell.....	Chillicothe, Ohio
Fahnestock, Sarah	Boulder
Field, John Thomas.....	Denver
Forsman, Hulda Hortense.....	Pueblo
Foster, Arthur Tilleson.....	Laramie, Wyoming
Foster, Lois May.....	Boulder
Freedheim, Eugene H.....	Denver
Fuller, Norman G.....	Loveland
Fulscher, Clara Anne.....	Holyoke
Fulscher, Hertha Adele.....	Holyoke
Gahagen, Agnes	Boulder
Galbreath, Gladys Armstead.....	Denver
Gapen Laura Villa.....	Palisade, Nebraska
Gelvin, Frances Valeria.....	Maitland, Missouri
Gertsen, Elizabeth	Boulder
Gibson, Clara.....	El Paso, Texas
Graham, Sarah Marie.....	Oberlin, Ohio
Griffith, James Eidson.....	Denver
Haeseler, Dorothy Marie.....	Boulder
Hair, James William.....	Denver
Hall, Ellis Azelle.....	Boulder
Hammond, Fred Charles.....	Glenwood Springs
Harger, George Ralph.....	Denver
Harmon, Julia Lettisa.....	Lafayette
Hart, Edward Baldwin.....	Denver
Hartwell, Dorothy Frances.....	Flagler
Hayes, Helen.....	Boulder
Healy, Edna Mae.....	Casper, Wyoming
Hill, Mathilda Barton.....	Boulder
Hillmer, Marion Esther.....	Freeport, Illinois
Hix, Clifton Arlie.....	Denver
Horton, Helen Eloise.....	Newcastle, Wyoming
Hughes, Sarah Ellen.....	Boulder
Hurst, H. Euvera.....	Montrose
Iskowitz, Aaron Edgar.....	Detroit, Michigan
Johnson, Elsa Marie.....	Boulder
Johnson, Frederick William.....	Brooklet, Georgia
Johnson, Mildred Nelle.....	Boulder
Johnson, Ruby Beatrice.....	Boulder
Jones, Dorothy May.....	Littleton
Kemmy, Marion Margaret.....	Boulder
Killgore, Anthony Jay.....	Boulder
King, Albert Leland.....	Rutherford, Tennessee
King, Nellie Paxton.....	Denver
Kinkade, Alma L.....	New Hampton, Missouri
Kistler, Hattie Ethel.....	Longmont
Kneale, William Christian.....	Boulder
LaGrange, Mark Dean, Jr.....	Meeker

NAME	RESIDENCE
Lail, Lois	Denver
Levin, Meyer Mitchell	Detroit, Michigan
Lillibridge, Ella Rosalie	Burke, South Dakota
Long, Ruth Elmina	Boulder
Lorber, Milton Bryan	Denver
Lovejoy, Elijah Parish	Rocky Ford
Lovelace, Stuart Harris	Brighton
Lund, Eva Catherine	Salt Lake City, Utah
McEwen, Theodore R.	Holyoke
McInnes, Donald	Boulder
McLaughlin, Margaret Caroline	Boulder
McLean, Beryl May	Lamar
McLean, Gladys Euphema	Lamar
McNerney, William Eugene	Goldfield
Malm, John Chester	Denver
Marr, Mary Annette	Denver
Martin, Lucille Dorothy	St. Louis, Missouri
Mason, Mary Eleanor	Denver
Mauntel, Grace Elizabeth	Alva, Oklahoma
Mayer, Marian Frances	Long Beach, California
Mealey, Bryan Jennings	Wray
Miller, Mildred Elizabeth	Boulder
Moulton, Elizabeth Gamml	Clifton
Murray, Albert Nelson	Boulder
Muth, Robert Joseph	Denver
Neeley, William B.	Longmont
Nelson, Norma Marie	Wellington
Newcomb, Mary Frances	Colorado Springs
Nicholson, Mary Belle	Denver
Noble, Kenneth Clay	Glidden, Iowa
Noggle, Alva Robinson	Fort Morgan
Noxon, Florence Kelso	Boulder
Ozanne, Henry Joseph	Denver
Park, Hazel Anna	Kutch
Parker, Carl H.	Boulder
Partridge, Elizabeth Wallace	Holly
Pope, Maxy Alice	Canon City
Price, Mary Ellen	Cripple Creek
Rait, Mary	Palisade
Ramsdell, James Williams	Lakewood, New Jersey
Randall, Marion E.	Rocky Ford
Reading, Kathryn Helen	El Paso, Texas
Reed, Mabel Alice	Wray
Reiter, Perry R.	Boulder
Reynolds, James Price	Cokeville, Wyoming
Richards, Mary Elizabeth	Hannibal, Missouri
Robeson, Frank K., Jr.	Champaign, Illinois
Robinson, Clarence William	San Acacio
Rohwer, Frank Wilbur	Boulder
Sanborn, Louise Caroline	Denver
Schalk, Robert Louis	Rawlins, Wyoming
Scheck, Mary Augusta	Olathe
Schwappe, Florence Lois	Boulder
Schwinn, Mildred Aldred	Wellington, Kansas
Sears, Thomas D.	Loveland
Shelton, Dorothy Dinsdale	Denver
Sherman, Nancy Louise	Denver
Shimeall, Robert C.	Goodland, Kansas
Sims, Marian Thompson	Monte Vista
Smith, Gertrude Marie	Red Oak, Iowa
Spackman, Ellis Leeds, Jr.	Colorado Springs
Spencer, Edith Pearl Conger	Boulder
Spencer, Emily Frances	Colorado Springs
Squire, Fay Huffman	Aberdeen, South Dakota
Starks, Charles Robert	Denver

NAME	RESIDENCE
Starr, Lucile	Fowler
Stevenson, Perry Lee.....	Boulder
Stewart, Magnus Jackson.....	Loveland
Strange, John Krueger.....	Steamboat Springs
Stubbs, Lucile	Fowler
Talbert, Dorothea Elliott.....	Boulder
Theus, Maimie Lee.....	Monroe, Louisiana
Thompson, Eldridge Cummings.....	Las Animas
Thompson, Lester Emmitt	Hugo
Thompson, Warren Osborne.....	Boulder
Thorp, Florence Elizabeth.....	Boulder
Tisdell, Bertram Boyd.....	Greeley
Toerge, Dorothea Miriam.....	Colorado Springs
Turney, Alice Elizabeth.....	Loveland
Twombly, Lena Marie.....	Fort Lupton
Wagner, Henry Joseph.....	Boulder
Walbridge, Clarence Friedrich.....	Durango
Ward, Thomas	Denver
White, Laura-Louise Clough.....	Boulder
Williams, Addison Leclercq.....	Denver
Williams, Allen Magee.....	Boulder
Williams, Alta	Boulder
Williams, Jennie Winona.....	Ucross, Wyoming
Wilson, Carroll Eldred.....	Milliken
Wood, Irene	Boulder
Wooding, Virginia Margaret.....	Montclair, New Jersey
Wray, Ralph Merritt.....	Olathe

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SOPHOMORE CLASS

NAME	RESIDENCE
Abell, Wendell Edward.....	Boulder
Albright Opal	Denver
Allen, Alexander J.....	Glenwood Springs
Allen, Cloye	Salida
Allison, Charles Kersey.....	Denver
Alpert, Herbert Arthur.....	Denver
Anderson, Newell Curran.....	Denver
Applegate, Edward H., Jr.....	Lamar
Arnold, Henry Avery.....	Denver
Ashley, Henrietta.....	Canon City
Atwood, Esther.....	Boulder
Bailey, Virginia Mary.....	Denver
Baker, Edith Hewitt.....	Quincy, Illinois
Baker, Mary Elizabeth.....	Pueblo
Ball, Reuben Creswell.....	Meeker
Barry, Helen Eleanor.....	Boulder
Beckwith, Bernice Roberta.....	Boulder
Bein, Laurel Mary.....	Berthoud
Bell, Dorothy	Boulder
Bell, John Laurence.....	Montrose
Bell, Katharine.....	Marshall, Missouri
Bellows, Marjorie Harlow.....	Toledo, Ohio
Benson, Amanda Elizabeth.....	Boulder
Bickley, Frances Alice.....	Raton, New Mexico
Black, William Cormack.....	Denver
Blackburn, Nan.....	Shenandoah, Iowa
Blake, Beryl Helen.....	Twin Falls, Idaho
Blakey, Margaret.....	Pleasanton, Kansas
Bleasdale, Eleanor Irene.....	Brush
Bohl, Manuel.....	Kinsley, Kansas
Bolton, Lucile Helene.....	Cedaredge
Borden, Jeanne	Boulder
Borough, Fred McClaren.....	Boulder
Boyd, William Logan.....	Milton

NAME	RESIDENCE
Brazil, Mary Lenore.....	La Veta
Breidenbach, George Francis.....	Boulder
Brifey, Caroline Flo.....	Pueblo
Bromley, Charles Dunham.....	Boulder
Brown, Frank Earl.....	Fort Collins
Buchanan, Helen Virginia.....	Sedgwick
Burger, Frances Marie.....	Boulder
Bush, Helen Emma.....	Denver
Cain, Lulu.....	Boulder
Callahan, Julia Tormey.....	Madison, Wisconsin
Cambier, Mont VanLare.....	Pueblo
Campbell, Joseph Leslie.....	Florence
Carlson, William Ferdinand.....	Canon City
Carr, Mary Ruby.....	Tulsa, Oklahoma
Casey, Mary Ita.....	Denver
Cattermole, George Stephenson.....	Boulder
Chapin, Leverett A.....	Boulder
Clark, Helen Lucile.....	Denver
Clemons, Pluma Lynk.....	Marshalltown, Iowa
Cobbey, Laurene.....	Denver
Collins, Ludlow Gale.....	Boulder
Condit, Zoe.....	Barnum, Wyoming
Cooper, I. Benjamin.....	St. Joseph, Missouri
Cordes, Howard F.....	Cincinnati, Ohio
Cordingly, Margaret Estelle.....	Denver
Cornell, Dudley Edgar.....	Boulder
Cowan, Lucile Harriett.....	Denver
Cowdery, Ruth.....	Denver
Crawford, Marvel Leaman.....	Denver
Curnow, Grace Melrose.....	Idaho Springs
Cush, Anthony John.....	Pueblo
Cutler, Edwynne Irene.....	Fort Morgan
Daniel, Elizabeth.....	Boulder
Danielson, Frances Ardis.....	Boulder
Davis, Mildred Irene.....	Pesotum, Illinois
Dawkins, Bernice Margaret.....	Boulder
DeArmond, Genevieve.....	Parsons, Kansas
Deibler, Helen Marguerite.....	Leadville
DeJong, Ellsworth George.....	Maurice, Iowa
Devine, Agnes Cecelia.....	Fowler
Dickson, Robert William.....	Denver
Dickson, Velma Louise.....	Boulder
Dilley, Marjorie Ruth.....	Canon City
Dillon, Charles F. Stenson.....	Denver
Dodson, Maude Marie.....	Durango
Doke, Celia Margaret.....	Greeley
Donnelly, Mary Lenore.....	Idaho Springs
Doyle, Gladys.....	Boulder
Drach, Mildred Agnes.....	Denver
Eagleton, Emerson M.....	Boulder
Edwards, Marie Mathilde.....	Waterloo, Iowa
Einhorn, Nathan Harry.....	Pueblo
Fair, Margaret.....	Boulder
Feinberg, Herman.....	Denver
Field, Pattie Hochaday.....	Denver
Fisher, Charles Ulysses, Jr.....	Glidden, Iowa
Freedle, Lucien.....	Saguache
Freeman, Rosalie Belle.....	Mancos
Freeman, Willyda.....	Oklahoma City, Oklahoma
Frewen, Helen Kathryn.....	Denver
Fuller, Richard Lee.....	Salida
Gamble, Elizabeth Louise.....	Boulder
Garst, John Delzell.....	Sterling
Gaunt, William Woodruff.....	Brighton
Giffin, Grace Lake.....	Boulder

NAME	RESIDENCE
Glass, Mabel Frances.....	Sterling
Goemmer, Elsie.....	La Veta
Goldberg, Max	Denver
Gorman, Shirley Ashbrook.....	Jerome, Idaho
Groshart, Oscar Doyle.....	Rifle
Guillet, Ethel Gladys.....	Mancos
Guthrie, Ida Virginia.....	Boulder
Hadley, John Milton.....	Boulder
Haeseler, Helen	Boulder
Haines, Gladys Katherine.....	Boulder
Haley, Lucille Scholastica.....	Holbrook, Nebraska
Hamblet, Joseph, Jr.....	Florence
Harms, Katharine Jane.....	Paris, Texas
Harrell, John Aldridge.....	Troy, North Carolina
Harris, William Bliss.....	Boulder
Harvey, Marion	Denver
Hathaway, Margaret Hines.....	Hugo
Hauk, Dorothy	Denver
Hayden, Esther Valee.....	Denver
Henderson, Philip E.....	Lynchburg, Ohio
Herzog, Robert Simon.....	Denver
Hicks, Nelson	Denver
Hildebrand, Roy Dallas.....	Newcomerstown, Ohio
Holmberg, Helen Beatrice.....	Idaho Springs
Holmes, Helen Mildred.....	Denver
Homer, James Thomas.....	Springfield
Hopkin, Robert Douglas.....	Denver
Howarth, Erwin McIntyre.....	Greeley
Howell, Chester E.....	Denver
Howell, Lucile Elizabeth.....	Trinidad
Hufsmith, Janice Kimball.....	Casper, Wyoming
Hughes, Bennet	Greeley
Hughes, Lela Lenore.....	Lamar
Hummel, Margaret Gibson.....	Boulder
Hunt, Rupert Lowell.....	Florence
Hunter, James Walton.....	Fruita
Hunter, Ralph Thompson.....	Trinidad
Huntington, Ruth Elizabeth.....	Denver
Husted, Esther Betty.....	Greenville, Ohio
Hyde, Mildred Ruth.....	Denver
Ingalls, Martha Elizabeth.....	Hygiene
James, Bernice Lucile.....	Boulder
Johnson, Doris Murray.....	Denver
Johnson, Winfred	Boulder
Johnston, Lucille.....	Topeka, Kansas
Johnston, Roderick Elmer.....	Denver
Jones, Frederick Lee.....	Limon
Jones, Josephine Broadus.....	Greeley
Jones, Laura Call.....	Denver
Kearney, Louis Everett.....	Boulder
Keck, Francis Bennett.....	Boulder
Kellar, Mary Naomi.....	Boulder
Kellogg, Richard Aaron.....	Boulder
Kingery, Jessie Roberson.....	Boulder
Kirk, William Corbett.....	Long Beach, California
Kistler, Ruth Irene.....	Glenwood Springs
Knox, Elizabeth Findlay.....	Denver
Koch, Walter Karl.....	Denver
Koperlik, Mina	Pueblo
Lackner, Louis	Denver
Ladd, Stanley Marvin.....	Denver
Laing, Gladys Emily.....	Eads
Lang, Marion La Josephine.....	Boulder
*Larson, Norman Myron.....	Miami, Arizona

* Died February, 1921.

NAME	RESIDENCE
Laub, Dorothy Connor.....	Boulder
Laub, Ruth Rebecca.....	Boulder
Law, Agnes	Severance
Lawler, Hazel Irene.....	Fowler
Lewis, Alta Maude.....	La Junta
Liebhardt, Georgia	Denver
Lienhard, Frank Leland.....	Slater, Missouri
Lindner, Nora	Boulder
Lomax, Florence Louise.....	Boulder
Lovejoy, H. Edwin.....	Rocky Ford
Lovejoy, Margaret.....	Jefferson, Iowa
Loving, Agnes Louise.....	Fowler
McDowell, Edward Walker.....	Denver
McGinnis, Inez	Boulder
McGowen, Marguerite Mary.....	Boulder
McInnes, Gertrude	Boulder
McIntyre, Clarence Albert.....	Blue, West Virginia
McKee, Effie Lee.....	Walsenburg
McKibbin, Margaret Henrietta.....	Creede
McKinley, Carl Dewey.....	Ault
McLaughlin, Theodosia	Boulder
McPherson, Dorothy May.....	Pueblo
McVay, Roy Bruce.....	Denver
Mabee, Zell Forest.....	Unionville, Missouri
MacDermaid, Gladys May.....	Boulder
Malm, Lawrence Louis.....	Denver
Markham, Clarence Arthur.....	Platteville
Mason, Isabel	Boulder
Mast, William H.....	Grand Junction
Matheny, Herman Claire.....	Scotts Bluff, Nebraska
Mayer, Hazel Helen.....	Long Beach, California
Merideth, John Andrew.....	Boulder
Mertens, Barbara C.....	Creston, Iowa
Messervé, Theodore Cleland.....	Boulder
Meyers, Pauline.....	La Junta
Millard, Lester B.....	Pueblo
Miller, Erban Burette.....	Millersville, Missouri
Mitchell, Frances Bertha.....	Boulder
Mitchell, Henry A.....	Boulder
Mitchell, John Charles.....	Boulder
Mohr, Clifford Lamont.....	Boulder
Monroe, Merna Myrtha.....	Knoxville, Iowa
Moore, David Earl.....	Idana, Kansas
Muth, Harold Ellridge.....	Denver
Nance, Lois Parke.....	Cleburne, Texas
Napier, Barnette Turner.....	Glenwood Springs
Nathan, Dorothy Alice.....	Pueblo
Neil, Lois LaVerne.....	Boulder
Neville, Florence	Loveland
Nice, Katherine Elizabeth.....	Boulder
Noggles, Mary Ruth.....	Boulder
Noonan, Eleanor Margaret.....	Glenwood Springs
Nordby, John Cecil.....	Santa Rita, New Mexico
Norvell, James Rankin.....	Hayden
O'Byrne, George Theodore.....	Denver
Oldenburg, Ray William.....	Glenwood Springs
Paland, Louis R.....	Denver
Palmer, Vera	Boulder
Parker, Myrtle Belle.....	Webber's Falls, Oklahoma
Patterson, Jane Elizabeth.....	Denver
Patton, Genevieve	Boulder
Paulicheck, Martha Josephine.....	Denver
Pepper, Harry Stewart.....	Denver
Perry, Francis Ben.....	Brighton
Person, Ernestine Alberta.....	Fort Collins

NAME	RESIDENCE
Petersen, Harry.....	Colorado Springs
Peterson, Earl Herman.....	Boulder
Peterson, Wesley Adelbert.....	Denver
Philpott, Osgoode S.....	Cripple Creek
Pitts, Inez Magnolia.....	Denver
Pleus, Robert James.....	Boulder
Plunkett, Theta Ida.....	Denver
Proske, Florence Martha.....	Denver
Queen, Clara Louise.....	Denver
Rapp, Herbert Timothy.....	Pueblo
Redmond, Isabelle Black.....	Denver
Reed, Paul Wilson.....	Boulder
Reid, Bessie Virginia.....	Windsor
Rendle, James Alfred, Jr.....	Denver
Rethlefsen, Helen Marie.....	Boulder
Richards, Lenora Dorothy.....	Boulder
Richardson, Gertrude Heien.....	Denver
Ridgeway, Leora B.....	Boulder
Roach, Helen Luise.....	Loveland
Roberts, Lucy Dean.....	Hotchkiss
Robinson, Mildred.....	Bisbee, Arizona
Roe, Maurice Alexander.....	Boulder
Rover, Henry Paul.....	Denver
Saar, Vera.....	Boulder
Salisbury, Jack William.....	Denver
Sayer, Parke J.....	Holly
Schreiner, Elizabeth Tuckey.....	Boulder
Scott, Rowena.....	Platteville
Seagley, Lucile J.....	Denver
Seal, Alberta Barbara.....	Denver
Secrest, Grace Elizabeth.....	Arvada
Sessel, Ben-Fleming.....	Boulder
Shaw, Margaret Amanda.....	Denver
Shere, Ben Harold.....	Denver
Sherwin, Grange Standart.....	Denver
Shoemaker, Abbott Hall.....	Boulder
Siggins, Ernest L.....	Denver
Simpson, George Gaylord.....	Denver
Skinner, Olive-Anne.....	Denver
Smiley, Mary Elizabeth.....	Timnath
Smith, Colin A.....	Meeker
Smith, Earl G.....	Washington, D. C.
Smith, Frank Reid.....	Boulder
Smith, Kathryn Elizabeth.....	Denver
Smith, Zola Myrle.....	Minturn
Smutz, Margaret.....	Fort Collins
Smÿthe, George Shirley.....	Salida
Sneddon, Eleanor Lettie.....	Boulder
Soifer, Isidore.....	New York City
Solt, Lois.....	Denver
Sprenger, Lester Ralph.....	Boulder
Squire, Ralph.....	Blackwell, Oklahoma
Stailey, Victor O.....	Denver
Stangel, Ethel.....	Denver
Stewart, Dorcus.....	Loveland
Stokes, Ethel Lewis.....	Boulder
Sullivan, Lillian Emma.....	Denver
Sunderland, F. Vaughn.....	Edgewater
Sutcliffe, Lester Bernard.....	Westcliffe
Symon, Leo Weil.....	Denver
Talbert, Helen Carey.....	Boulder
Taylor, Earl Golding-Dwyre.....	Fort Collins
Taylor, Weston Edward.....	St. Louis, Missouri
Teutenberg, Eula Green.....	Boulder
Thompson, Frances Ernesta.....	Boulder

NAME	RESIDENCE
Thompson, Ruth Louise.....	Denver
Thompson, William Ferrell.....	Niwot
Thorpe, Ruth	Boulder
Townley, Thena E.....	Miami, Florida
Treat, Florence Margaret.....	Onawa, Iowa
Turner, George Lynn.....	Lyons
Unfug, George Arnold.....	Walsenburg
Utter, Gladys Vivian.....	Denver
Vogt, Emma Rowena.....	Denver
Walter, Frank J.....	Denver
Walter, Harold John.....	Pueblo
Walton, Clara.....	Kimberly, Idaho
Ward, Louisa Atkinson.....	Denver
Warriner, Virginia E.....	Denver
Webster, Bethuel Matthew, Jr.....	Denver
Wedgwood, George Warren, Jr.....	Gooding, Idaho
Weese, Albert Meyer.....	Denver
Wells, Genevieve Elizabeth.....	Boulder
Westerman, Leslie Conrad.....	Boulder
Whistler, Rebecca	Denver
White, Elizabeth Frances.....	Boulder
White, William Faye.....	Fruita
Wild, Gertrude.....	Cisco, Texas
Wildy, Lois	Boulder
Williams, James Reid.....	Yampa
Williams, Robert Hilliard.....	Breckenridge
Wilson, George Gruver.....	Montrose
Wilson, Irene Bates.....	Boulder
Wilson, Laura Reid.....	Edgewater
Wilson, William.....	Glenwood Springs
Wood, Inez	Boulder
Woodward, Elizabeth Redin.....	Boulder
Worley, Isabell	Denver
Writer, Deane Jasper.....	Denver
Wyatt, Harriet Elizabeth.....	Casper, Wyoming
Zanoni, John Louis.....	Denver
Zingg, Robert Mowry.....	Boulder
Zuckerman, Samuel Stewart.....	Boulder

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FRESHMAN CLASS

NAME	RESIDENCE
Adams, Lillian Maisie.....	Boulder
Adams, Phelps H.....	Denver
Alford, Stanley William.....	Boulder
Allison, Paul Gerald.....	Denver
Altieri, John Angelo.....	Coal Creek
Amdon, Earl G.....	Denver
Ament, Orville Webster.....	Kansas City, Missouri
Ames, Ben, Jr.....	Boulder
Anderson, George R.....	Walsenburg
Anderson, Lucille Clare.....	Denver
Andrews, Leila Eleonor.....	Boulder
Apland, Fred E.....	Cambridge, Iowa
Archibald, Howard G.....	Pocatello, Idaho
Ardourel, Aline Elizabeth.....	Boulder
Argyr, Nicholas	Pueblo
Arkwright, Harold Carew.....	Colorado Springs
Arnold, D. Clayton.....	Kansas City, Missouri
Atkins, Hugh E.....	Shreveport, Louisiana
Atterbury, Raymond Lawrence.....	Denver
Babcock, Rupert Roscoe.....	Castle Rock
Bachrach, Constance M.....	San Francisco, California
Bacon, Fern Gladys.....	Rocky Ford

NAME

RESIDENCE

Bailar, John Christian, Jr.	Golden
Bailar, Ruth Esther	Golden
Bailey, Beatrice	Martinsville, Indiana
Baird, Janice Velma	Boulder
Baird, Merrill Wallace	Pocatello, Idaho
Baker, Clara Ruth	Tiffany
Ball, Elizabeth Mary	Wheatridge
Bancroft, Catherine Virginia	Oakland, California
Bardwell, Rodney J., Jr.	Denver
Bare, Edward King	Denver
Barker, James Ellsworth	Burlington
Barnard, Charles Frederick	Boulder
Barney, William Meridith	Manzanola
Barrick, Jessie Erma	Idaho Springs
Bartholomew, Esther	Hardy, Iowa
Bartlett, Eva H.	Jefferson
Bartley, Thomas	Pueblo
Bastine, Bernice	Denver
Bates, Mary Charline	Denver
Bathrick, Frances Slade	Cleveland, Ohio
Baum, George	Fort Collins
Bauserman, William Abraham	Manzanola
Beard, Theodore R.	Sapulpa, Oklahoma
Beattie, Irwin Sorrells	Denver
Beatty, Henry Johnnie	Monte Vista
Beck, Oscar Robert	Denver
Beck, Warren Roosevelt	Salida
Bedell, Pauline Marjorie	Hastings, Nebraska
Beier, Hazel	Long Beach, California
Bellinger, Clarence C.	Ouray
Belman, Margaret	Fleming
Bender, Tekla Phyllis	Denver
Bennett, Hazel	Boulder
Bennett, Hazel May	Denver
Benson, Helen Mathilda	Denver
Biglow, Maxine	Glenwood Springs
Bilbrough, Robert E.	Boulder
Billig, Grace Catherwood	Boulder
Birch, Velma Genevieve	Pagosa Springs
Bishop, Ralph Wilke	Boulder
Blackwood, Mildred	Boulder
Blankenship, Agnes	Osborne, Kansas
Bluhm, Virginia Helen	Washington, D. C.
Blunt, Jessie	Florence
Boehm, Kenneth Scott	Boulder
Boham, Margaret	Salida
Bond, Marjorie Irene	Denver
Bonesteel, Henry	Denver
Boos, Florence Virginia	Fort Worth, Texas
Booth, Albert S., Jr.	Pueblo
Booth, Lawrence M.	Sawyer, North Dakota
Borland, Helen Blanche	Wray
Borough, William Ray	Lawrenceville, Illinois
Borwick, David Harold	Denver
Boulton, Ralph Emerson	Denver
Bowman, James Clinton	Denver
Braden, Leonora Blanche	Lafayette
Bradford, Robert Wilson	Watkins
Brandt, Fred P.	Pocatello, Idaho
Brewer, Elizabeth	Jerome, Idaho
Breyfogle, Margaret	Boulder
Brickler, Carrie Louise	Denver
Bridges, Marriet Maybelle	Monument
Briggs, Roy	Greeley
Brittain, Hellan Hester	Leadville

NAME	RESIDENCE
Britzman, Homer Elwood.....	Colorado Springs
Brock, Elizabeth	Denver
Brown, Elmer M.....	Boulder
Brown, Elmer P.....	Loveland
Brown, Emma Elise.....	Boulder
Brown, Fred R.....	Wiggins
Brown, Harry Harrison.....	Pueblo
Brown, Paul Wilfred.....	Sterling
Brueggeman, Theodore R.....	Denver
Buchanan, Eunice Irene.....	Sedgwick
Bumgarner, Frank Edwin.....	Wendell, Idaho
Bunyan, Margaret	Berthoud
Burger, Charles Roland, Jr.....	Boulder
Burrage, Barbara	Boulder
Burrows, Gladys	Boulder
Burtis, Ernest Thayer.....	Phoenix, Arizona
Byram, John Perkins	Mesa
Caldwell, Harold Ferguson.....	Morrisonville, Wisconsin
Callow, Charles Arndt.....	Platteville
Campbell, Bertha L.....	Florence
Carballosa, Joseph M.....	Montrose
Cardy, Mary Kathryn.....	Marceline, Missouri
Carmody, Mary Alice.....	Denver
Carpenter, C. Harvey.....	Denver
Carpenter, Charles W.....	Shariton, Iowa
Carpenter, Virgil Marvin.....	Shariton, Iowa
Carson, Mary	Boulder
Casey, Alice Lenore.....	Denver
Castell, John Hudson.....	Boulder
Cave, Ruth	Boulder
Cawood, Mr. Ruby H.....	Boulder
Chambers, Florence	Boulder
Chapman, Hal	Denver
Chase, John Earl.....	Denver
Cheedle, Esther.....	Grand Junction
Cheely, Otis J.....	Fort Lupton
Cheney, Gwendolynne	Boulder
Christensen, Emil Wilbur.....	Boulder
Christoffers, Johanna	Denver
Clark, David	Boulder
Clark, Edgar Wilson.....	Greeley
Clatworthy, Helen E.....	Boulder
Clausen, Erma	Denver
Clay, Charles Hickman.....	Greeley
Cleaves, Helen G.....	Granada
Clements, Catherine B.....	Ord, Nebraska
Clennin, Marie	Boulder
Clossen, Marie M.....	Arena
Cohn, Sara Ruth.....	Boulder
Coombs, Frank Ben.....	Burlington
Cooper, Kemp G.....	Denver
Corlett, Virginia Dorrance.....	Colorado Springs
Cosgriff, Stewart	Denver
Cottrell, John C.....	Grand Junction
Couch, Dora May.....	Merino
Craig, Homer Vincent.....	Boulder
Craig, Thomas Day.....	Boulder
Crawford, Wilma Gertrude.....	Meeker
Creighton, Basil R.....	Manitou
Crisp, Nancy Lewis.....	Denver
Crispelle, Wilda	Leadville
Croke, Alice Virginia.....	Denver
Cross, William Hutchinson.....	Douglas, Wyoming
Crowdis, Henry Jordan.....	Boulder
Croyle, Frances W.....	Boulder

NAME	RESIDENCE
Cummings, Lillian	Boulder
Cummins, Marguerite C.	Durango
Cunningham, Doyle Douglass	Lodge Pole, Nebraska
Cushman, Fern Myrtle	Ann Arbor, Michigan
Daffinrud, Newton Mansfield	Hazen, North Dakota
Dalglish, M. Loraine	Sterling
Dalton, Coral	Boulder
Daniels, Day	Dighton, Kansas
Daniels, Leslie	Boulder
Daniels, Mortimer B.	Denver
Danks, Edna Montana	Littleton
Davenport, Nila	Bayfield
Davis, Ruth Wilma	Denver
Denison, Margaret	Denver
Devine, Ruth	New York City
Dice, Mildred Haynie	Lafayette
Dickinson, Margaret L.	Lander, Wyoming
Dickson, Winona	Denver
Diercks, John Albert	Mason City, Iowa
Diller, Frank	Albany, Texas
Dillon, Dorothy	Denver
Dixon, Blanche J.	Newcastle, Wyoming
Dolezal, George Milton	Denver
Dowd, John William	Red Cliff
Dowd, Leonard Eady	Red Cliff
Downer, Ethel	Denver
Downey, Isabella	Ordway
Downie, William Roswell	Denver
Drake, Bonnie Blanche	Boulder
Drake, Loice Marie	Boulder
Draper, Helen	Boulder
Dugger, Eva Elizabeth	Denver
Dunlap, Florence M.	Aurora
Dutcher, James Arthur	Montrose
Dwyer, Agnes Viola	Creede
Dyatt, Opal Jean	Goodland, Kansas
Eagleton, Paul P.	Boulder
Eastland, Frederic Randall	Council Bluffs, Iowa
Eaton, Helen Jewell	Eaton
Eddins, May	Denver
Edwards, Arthur Usher	Waterloo, Iowa
Eisendorfer, Arnold	Denver
Eldred, Helene Marye	Boulder
Ellerbeck, Winston	Salt Lake City, Utah
Elliott, Dorothy	Denver
Elofson, Oliver W.	Salida
Enright, Alice	Denver
Erickson, Ida Marguerite	Boulder
Etzel, Gastão	Boulder
Faris, Lena Pearl	Boulder
Farwell, Elizabeth Marion	Boulder
Fewer, William H.	Denver
Field, Marjory Alice	Fort Collins
Fingado, Francis H.	Arlington
Fitzmorris, Clark S.	Boulder
Fitzmorris, George Dewey	Boulder
Fitzmorris, Myra Jane	Boulder
Fleming, Jane Lloyd	Denver
Fletcher, Malvina Frances	Denver
Foley, James Edward	Denver
Forsythe, Flora Margaret	Denver
Foster, Frances Claire	Denver
Frame, Marjorie	Sterling
Francis, Joseph	Leadville
Frederickson, Robert G.	Canon City

NAME	RESIDENCE
Freeman, Leonard, Jr.	Denver
Friesch, Wenzel	Pueblo
Frink, Eugene Hudson	Larkspur
Fuller, Marion Constance	Loveland
Funk, George Kenneth	Yuma
Galley, Henry Bowlby	Grand Junction
Gardner, Gertrude	Fort Smith, Arkansas
Garnett, Olen Sylvanus	Boulder
Garvin, Paul	Boulder
Gehman, Lester	Boulder
Gibson, George William	Springfield, Illinois
Gildersleeve, William Austin	Denver
Gillard, Gordon Webb	Denver
Gilliam, Marguerite H.	Boulder
Given, Gyneth	Pueblo
Glanz, Dorothy	Chicago, Illinois
Glover, Hubert	Colorado Springs
Goff, Hayward Robert	Boulder
Golden, Levi Dick	Kensington, Kansas
Gray, Harold Holton	Brush
Gray, Lisle M.	Pueblo
Gray, Merle Jeannette	Pueblo
Gray, Royal Luther	St. John, Kansas
Greenman, Elon E.	Sterling
Greeson, Margaret Elizabeth	Boulder
Greeson, Mildred Irene	Boulder
Gregg, Leland Dwight	Berthoud
Gregory Thelma	Denver
Gregory, Virgil	Hamilton, Missouri
Griesmer, William Perrine	Hamilton, Ohio
Griffith, Barrick John	Denver
Griffith, Floyd R.	Norton, Kansas
Griffiths, Cromer Eugene	Denver
Grimes, Gertrude	Colorado Springs
Gromer, Martha Maurine	Hugo
Grout, E. Leonard	Denver
Gruver, Merle	Monte Vista
Haas, Harry H.	LaCrosse, Kansas
Hadley, Paul H.	Denver
Hambry, Fred Burt	Pueblo
Hanson, Martha Louise	Denver
Hardenburgh, Karl D.	Berkeley, California
Hardy, Frank A.	Las Animas
Harris, Myra Virginia	Boulder
Harrison, Florence Leonard	Denver
Harshman, Edith	Boulder
Hart, Bernice Edalyn	Denver
Hause, Bertrand Meier	Cedar Rapids, Iowa
Hawkins, Carl Herman	Montrose
Hawkinson, Willard G.	Marquette, Kansas
Heckert, Russell Earl	Olathe
Hecox, Roy Charles	Denver
Heilman, Arthur Grant	Monte Vista
Herrington, LaVon	Denver
Herzer, William Philip	Boulder
Hesser, Oragayl	Boulder
Hester, Evelyn Obera	Boulder
Hicks, Henry Allyn, Jr.	Denver
Hillyer, Ernest Cain	Boulder
Hinman, Helen Mary	Austin
Hobson, Frances Finlay	Denver
Hocking, Pauline Elizabeth	Boulder
Hoffman, Doris Helen	Littleton
Holland, Madge Margaret	Cripple Creek
Holtom, Ruth Dexter	Boulder

NAME	RESIDENCE
Hopkirk, Lois.....	Grand Junction
Hotchkiss, Frank Watkins.....	Denver
Howard, Merle Auvern.....	Boulder
Howe, Virginia.....	Boulder
Hubbard, Violet Marie.....	Boulder
Huff, Dick.....	Casper, Wyoming
Hum, Elizabeth Byerly.....	Denver
Humiston, Bernice Winifred.....	Boulder
Humphreys, Marion Frances.....	Merino
Hunt, Harold K.....	Raton, New Mexico
Hupp, John Ervin.....	Estes Park
Hurst, Elizabeth Margaret.....	Center
Hyde, Mabel L.....	Denver
Ingold, John Harold.....	Boulder
Irwin, Irene.....	Greenville, Ohio
Iverson, Burniece.....	Sheldon, Iowa
Jackson, Bernice Catherine.....	Springfield
Jackson, Frank.....	Las Animas
Jaeger, Dorothy Love.....	Denver
James, Donnelly Trent.....	Boulder
James, Velma Elvira.....	Boulder
Jarvis, Ruth Alice.....	Longmont
Jeffery, Amorita.....	Loveland
Jenkins, Christine.....	Colorado Springs
Jenks, Clark Wilmont.....	Denver
Jenne, Alice Elhora.....	Boulder
Johnson, Alice Deane.....	Wiggins
Johnson, Colonel Allen.....	Boulder
Johnson, Elton D.....	Estes Park
Johnson, Francis Emanuel.....	Greeley
Johnson, Grace.....	Boulder
Johnson, Helen.....	Boulder
Johnson, Lucile.....	Carlsbad, New Mexico
Johnston, Emily Timothee.....	Cheyenne, Wyoming
Jonas, Helen Mary.....	Denver
Jones, Alice Lerchen.....	Littleton
Jones, Harold Allen.....	Torrington, Wyoming
Jones, Robert Clark.....	Lamar
Jordan, Lawrence Alexander.....	Denver
Joyce, Ralph.....	Boulder
Keim, Donald D.....	Denver
Keyt, Dora Madge.....	Boulder
Kimlin, Dorothy Louise.....	Denver
Kindley, Freda Margarette.....	Boulder
King, Theodore Paul.....	Idaho Springs
Knight, Edgar Gustavus.....	Denver
Knisely, Vera Lilyan.....	Boulder
Knisely, Vira Evelyn.....	Boulder
Knoch, Kathrine Hamlin.....	Florence
Knox, Claire Katherine.....	Denver
Knutson, Roland Arthur.....	Stangelville, Wisconsin
Koenig, Ralph Albert.....	Koenig
Kohler, Elizabeth Rose.....	Boulder
Kokanour, Agnes.....	Rogers, Arkansas
Lail, Robert William.....	Denver
Lamborn, Dewey L.....	Denver
Lannon, Ruth.....	Pueblo
Larrick, Mary.....	Greeley
Larsen, James Albert.....	Denver
Larson, Thelma Flora.....	Clark
LaShell, Susan Cannie.....	Denver
Law, Esther.....	Colorado Springs
Lee, Mildred Ruth.....	Pueblo
Lenihan, John Bernard.....	Cheyenne Wells
Lennon, Florence Consuelo.....	Boulder

NAME	RESIDENCE
Lennon, John Edward.....	Boulder
Leonard, Frances Josephine.....	Lamar
LeRoy, Caroline	Denver
Levy, Clara C.....	Pueblo
Levy, Ethel Juliette.....	Pueblo
Levy, George Grace.....	Boulder
Lewis, Marvin Wayne.....	Canadian, Texas
Lewis, Moses Edward, Jr.....	Canon City
Lifshutz, David Arnold.....	Denver
Lilley, William Case.....	Virginia Dale
Lindsley, Henry Sherman.....	Denver
Lipscomb, Thomas Walker.....	Rome, Georgia
Litmer, Irma Lucille.....	Denver
Loebnitz, Margaret	Telluride
Loftus, Billy	Denver
Longcor, Mina Myrland.....	Belvidere, Illinois
Longcor, Willard B.....	Belvidere, Illinois
Longstreth, M. Esther.....	Boulder
Longstreth, Thelma Gladys.....	Boulder
Lorber, Arthur B.....	Denver
Lord, William Edward.....	Denver
Lorenz, Paul Brown.....	Denver
Loucks, Marie Evelyn.....	Denver
Loveland, Dorothy Louise.....	Boulder
Lowe, Ellsworth Fred.....	Denver
Lundberg, Ruth Charlotte.....	Boulder
Lyles, John Wesley.....	Anguilla, Mississippi
Lyles, Reginald Alva.....	Denver
McAllister, Marian Elizabeth.....	Boulder
McCapes, Morten Adelbert.....	Boulder
McClelland, Austin K.....	Yuma
McCombs, Elizabeth.....	Marshalltown, Iowa
McCombs, Ruth Elizabeth.....	Cleveland, Ohio
McCoy, Ernest Melville.....	Boulder
McDonald, Mabelle Irene.....	Shelton, Nebraska
McDougal, Meredith Vernon.....	Vernon, Texas
McGowen, Aldean	Boulder
McGraw, William Sampson.....	Pueblo
McGrew, William Anderson.....	Denver
McInnes, John Gordon.....	Boulder
McIntosh, Margaret.....	Las Animas
McLean, Donald H.....	Lamar
McMurtrie, Samuel, Jr.....	Denver
McNelly, Mildred Francis.....	Denver
Mabee, Ray.....	Unionville, Missouri
MacGinnis, Donald Lorraine.....	Buena Vista
MacKenzie, Burleigh.....	Canon City
Magnan, Mirtha	Denver
Maier, Rolla R.....	Wilbur, Washington
Malone, Katherine	Boulder
Maloney, Ella Belle.....	Denver
Maloney, John Thomas.....	Denver
Markland, Irene.....	Nevada, Iowa
Marley, Pauline Mae.....	Glenwood Springs
Maroney, Roland Francis.....	Denver
Marschner, John H.....	Denver
Marsh, Earl James.....	Chugwater, Wyoming
Marsh, Edith Cinderella.....	Chugwater, Wyoming
Marsh, Jerry Will Q.....	Denver
Martin, Nida Mildred.....	Amarillo, Texas
Mason, Barbara	Boulder
Mason, Lily Belle.....	Hayden
Mason, Reba.....	Uvalde, Texas
Mason, Verna.....	Uvalde, Texas
Mathers, Edwin Friend.....	Delta

NAME

RESIDENCE

Matheson, Oliver F.....	Maribel, Wisconsin
Matthews, Annette Elizabeth.....	Grand Junction
Matthews, Francis Holmes, Jr.....	Liberty, Missouri
Matthews, Mabel Frances.....	La Junta
Mattison, Percy A.....	Boulder
Means, Ethel Alice.....	Boulder
Means, Grace Eunice.....	Boulder
Merialdo, Adeline Christina.....	Eureka, Nevada
Merrill, John Will.....	Lamar
Metcalf, Florence.....	Boulder
Miles, Louis Leslie.....	Boulder
Miller, Clara M.....	Lafayette
Miller, Donald Clifford.....	Lusk, Wyoming
Miller, Eleanor Rubie.....	Fort Morgan
Miller, Grace.....	Durango
Miller, Simon Israel.....	Denver
Miller, William Braxton.....	Bennett
Mills, Louise.....	Olathe
Mitchell, Katherine Farmer.....	Boulder
Monnig, Joseph Carvill.....	Denver
Monroe, Marita A.....	Knoxville, Iowa
Montgomery, Edward E.....	Coshocton, Ohio
Montgomery, Florence Hutchinson.....	Denver
Moore, Mildred.....	Trinidad
Moore, Orin Prince.....	Denver
Moore Roy J.....	Montrose
Morse, Berenice Elaine.....	Denver
Mosca, Angelo.....	Walsenburg
Moseley, Hardwick Robert.....	St. Augustine, Florida
Murphy, Norman Walter.....	Monte Vista
Murry, W. Herbert.....	Boulder
Myres, Ruth Lynn.....	Boulder
Napheys, Benjamin J., Jr.....	Denver
Newsom, Georgia Rose.....	Boulder
Newsom, John Irving.....	Denver
Newton, Jacke.....	Mountain View, Wyoming
Nicola, Eileen J.....	Boulder
Norcross, Harold L.....	Greeley
Nortz, Vera May.....	Boulder
Noxon, Alice Rose.....	Boulder
O'Brien, Charles Henry.....	Parker
Ohling, Marion Palma.....	Boulder
Oldaker, Merritt Westerfield.....	Albuquerque, New Mexico
Olson, Milleread.....	Boulder
O'Malia, Angela Allison.....	Boulder
Orman, Nell.....	Pueblo
Osborne, Harry Barnum.....	Denver
Owen, William Myron.....	Denver
Paquin, Mary T.....	Mancos
Paradice, Virginia.....	Denver
Paradis, Richard Armand.....	Denver
Parker, Frank B.....	Casper, Wyoming
Parkin, Eileen Pearl.....	Boulder
Parks, Elliott Howard.....	Boulder
Paterson, Harold Cameron.....	Boone, Iowa
Patton, Marietta E.....	Denver
Paul, Frances.....	Denver
Paul, Loretto Dorothy.....	Denver
Payne, Mary June.....	Winchester, Indiana
Payton, Frazier James.....	Terre Haute, Indiana
Peavey, George James.....	Denver
Pedroja, Lydia Frances.....	Manitou
Peet, Creighton Byrd.....	Denver
Penner, Ursula.....	Beatrice, Nebraska
Pennington, Walter Givens.....	London, Kentucky

NAME	RESIDENCE
Perry, Philip K.....	Denver
Peterson, Raymond Oscar.....	Loveland
Phillips, Lawrence E.....	Rockvale
Philpott, Ivan Watson.....	Cripple Creek
Pickens, Percy R.....	La Veta
Pickett, Robert Barrett.....	Clyde, Ohio
Pierson, Stella Ruth.....	Denver
Plaum, Helen Marie.....	Cripple Creek
Pleus, Carl Theodore.....	Boulder
Pohlman, Alice Emiline.....	Akron
Pohlman, Hazel Marie.....	Akron
Polson, Dorothy.....	Hoquiam, Washington
Porter, Ada B.....	Greensburg, Pennsylvania
Porter, William Woods, II.....	Denver
Potter, Paul Ira.....	Blackwell, Oklahoma
Potter, Stafford Ferrar.....	Denver
Powell, Frances Loring.....	Denver
Powers, Marjorie Elizabeth.....	Boulder
Preder, Pearle.....	Denver
Preston, Glen Harry.....	Estes Park
Prey, Viola Ruth.....	Denver
Price, John William, Jr.....	Cripple Creek
Prince, Catharine M.....	Denver
Pritchard, John Clyde.....	Walsenburg
Proffitt, Elvie.....	Boulder
Pyle, Delila Grace.....	Pattonsburg, Missouri
Pyper, John Lukes.....	Council Bluffs, Iowa
Pyper, Walter Wood.....	Council Bluffs, Iowa
Quinlan, Arthur W.....	Boulder
Quinlan, Helen Rebecca.....	Boulder
Quinlan, James B.....	Boulder
Raphiel, Lou André.....	Campti, Louisiana
Rawles, Wallace X.....	Glenwood Springs
Rawlings, Wayne Robert.....	Boulder
Ray, Donald H.....	Osceola, Nebraska
Reardon, Francis William.....	Salida
Reckling, Walter E.....	West Salem, Illinois
Reed, Edith Mitchell.....	Manitou
Reed, Mary.....	Boulder
Reed, Walker.....	Grand Junction
Reeves, Helen Elizabeth.....	Denver
Reid, Helen Elizabeth.....	Cheyenne, Wyoming
Reilly, Bernice Marie.....	Denver
Reno, William Millard.....	Denver
Reynolds, Kenneth Edgar.....	Denver
Richards, David Casius.....	Boulder
Ridgeway, Orr Lamar.....	Pocatello, Idaho
Riggs, Rebecca Myrtle.....	Paris, Texas
Riley, H. Winslow.....	Denver
Riner, Arthur.....	Boulder
Rinker, Theodore Wilson.....	Denver
Roach, John Laverne.....	Omaha, Nebraska
Robbins, Ruth Mary.....	Occidental Negroes, Philippine Islands
Roberts, Alice Pomeroy.....	Manitou
Roberts, Leonard L.....	Florence
Robinson, Louis S.....	Denver
Robinson, Ruth Louise.....	Golden
Robinson, Sam M.....	Denver
Robinson, Stephen.....	Des Moines, Iowa
Rodgers, Martha Elizabeth.....	Denver
Rodman, Agatha Marie.....	Pueblo
Rogers, Loretta E.....	Denver
Roley, Rolland William.....	Pueblo
Ronayne, Ruth.....	Boulder
Roper, Reginald C.....	University Place, Nebraska

NAME	RESIDENCE
Rosenow, Bernita Mae.....	Billings, Montana
Rosenow, Fern LeFon.....	Billings, Montana
Rotolo, Lucile Phyllis.....	Denver
Rowand, Edward W.....	Boulder
Royer, William Edward.....	Boulder
Rusk, James Henry.....	Palisade
Rust, Estella Louise.....	Boulder
Rutledge, Russell Weldon.....	Portsmouth, Ohio
Saegart, Ernest Redfield.....	Denver
Sample, Raymond Dewey.....	Laird
Sands, Mary Kathleen.....	East Las Vegas, New Mexico
Saylor, Fred E.....	Longmont
Saylor, Josephine Agnes.....	Bridgeport, Illinois
Schepp, August J. Franz.....	Denver
Schlappi, John Carl.....	Canon City
Schlueter, Helen Viola.....	Denver
Schmidt, Zelma Ione.....	Kansas City, Missouri
Schwieso, Charles, Jr.....	Longmont
Scott, Lester A.....	Loveland
Scott, Logan Ray.....	Lipscomb, Texas
Scott, Mildred Christine.....	Las Animas
Scott, Robert Benjamin.....	Platteville
Scott, Willena Porter.....	Boulder
Sears, Carl R.....	Walsenburg
Sears, Lois Helen.....	Neillsville, Wisconsin
Sears, Thomas H.....	Neillsville, Wisconsin
Secrest, Estalene Alice.....	Arvada
Seed, Elvira L. E.....	Boulder
Sharman, Henry Harland.....	Salt Lake City, Utah
Shaw, Blanchard Grammer.....	Denver
Shaw, Harold Fisher.....	Grand Junction
Sheflan, S. Lionel.....	Denver
Sheldon, Franklin Bell.....	Riverton, Wyoming
Shellabarger, Ruth Eleanor.....	Castle Rock
Shelton, Gladys R.....	Hayden
Shideler, Arthur Wilbur.....	Boulder
Shippey, Helen Hall.....	Saguache
Shontz, Charlotte Louise.....	Denver
Simms, Margaret Jane.....	Denver
Small, Dorothy.....	Boulder
Smallhurst, Isabel King.....	St. Louis, Missouri
Smercheck, Bernice, A.B.....	Boulder
Smith, Dorothy Irene.....	Ault
Smith, Eugene Hanson.....	Trinidad
Smith, Isabel Letitia.....	Meeker
Smith, Kenneth Douglas.....	Summerfield, North Carolina
Smith, Mack Clifford.....	Fort Lupton
Smith, Milton, Jr.....	Denver
Smith, Ruth Marie.....	Denver
Snodgrass, Eula Mae.....	Boulder
Snyder, B. Josephine.....	Paxton, Nebraska
Snyder, Frank A.....	Grand Junction
Snyder, Hugh Braham.....	Paxton, Nebraska
Snyder, Paul W.....	Windsor
Snyder, Ralph R.....	Grand Junction
Snyder, Robert Fortney.....	Golden
Sohns, Rosalind.....	Boulder
Sparhawk, Elizabeth.....	Denver
Spear, Gladys.....	Boulder
Stabler, Edmund Ian.....	Austin
Starkey, Jesse B.....	Post City, Texas
Starrett, Goldwin Redfield.....	Wilmington, North Carolina
Stephenson, Grace Edithe.....	Carlsbad, New Mexico
Stewart, Margaret M.....	Denver
Stiefel, Ruth Bertha.....	Denver

NAME	RESIDENCE
Stilwell, Marion Elizabeth.....	Denver
Stodghill, Daphne.....	Boulder
Strader, Harold Leslie.....	Cheyenne, Wyoming
Strong, William M.....	Boulder
Stroup, Clayton King.....	Artesia, New Mexico
Stubbs, Lawrence Griffith.....	Denver
Suddard, Harold.....	LaGrange, Illinois
Sutton, Clement, Jr.....	Trinidad
Swisher, Frank Earle.....	Palisade
Sylvester, John.....	Denver
Tarabino, Peter Michael.....	Trinidad
Taylor, Etta.....	Glenwood Springs
Taylor, Ruth.....	Avondale
Temple, Laura M.....	Boulder
Tepper, Maurice.....	New York City
Thomas, Beth.....	Colorado Springs
Thomas, Helen Leona.....	Boulder
Thome, Helen Louise.....	Walsenburg
Thompson, Helen Elizabeth.....	Denver
Thompson, James E.....	Hugo
Thompson, Leono F.....	Hugo
Thompson, Sue.....	Enid, Oklahoma
Thompson, Thelma Marguerite.....	Wheatland, Wyoming
Thomson, Arthur Holland.....	Platteville
Touhy, George W.....	Boulder
Trent, Clarke H.....	Okmulgee, Oklahoma
Treize, Ruth Ann.....	Boulder
Trowbridge, Charles Russell.....	Boulder
Troxel, Florence.....	Denver
True, Florence Winger.....	Saguache
Tully, Maude Marie.....	Monte Vista
Turner, William Peter.....	Berthoud
Turnquist, John Roosevelt.....	Gothenburg, Nebraska
Turpin, Ethel Winifred.....	Brush
Turtle, M. Alice.....	Denver
Underwood, Margaret.....	Denver
Ungemach, Ruth Virginia.....	Denver
Vars, Harry Morton.....	Edelstein, Illinois
Vaughan, Elizabeth Mary.....	Lafayette
Vickery, Albion K., Jr.....	Denver
Vickery, Howard F.....	Denver
Vogel, Florence E.....	Boulder
Voorhees, Myrtle E.....	Walters, Oklahoma
Voorhees, Ruth Paula.....	Walters, Oklahoma
Wadsworth, Virginia.....	Chicago, Illinois
Waggoner, Charles Delos, Jr.....	Telluride
Wagner, Edith.....	Denver
Wagner, William H., Jr.....	Fort Collins
Waite, Helen E.....	Denver
Walker, Charles Edward, Jr.....	Denver
Walkinghood, Helen Gould.....	Pueblo
Wall, Alfred Edward.....	Longmont
Wallace, Bruce B.....	Denver
Wallace, James H.....	Pueblo
Wallace, Lenore A.....	Boulder
Wallis, Opha.....	Boulder
Walsh, Bert.....	Denver
Walter, Karl Jack.....	Pueblo
Walter, Karl Louis.....	Denver
Walter, Violet G.....	Denver
Watts, Nina Austin.....	Boulder
Wedding, Thelma Irene.....	Loveland
Wehle, Alexander Francis.....	West Bend, Wisconsin
Weller, George Ellsworth.....	Golden
Welles, Frank Ephraim, Jr.....	Scotia, New York

NAME	RESIDENCE
Wells, Margaret Harris.....	Colorado Springs
Welsh, William E.....	Des Moines, Iowa
West, Hilary Blanchard.....	Grand Island, Nebraska
West, Walter Gerald.....	Grand Island, Nebraska
Wheelock, Eleanor Daisy.....	Boulder
White, Miller	Golden
Wigglesworth, Vera Mae.....	Durango
Wightman, Raymond Almon.....	South New Berlin, New York
Wilcox, Alfred Bulkeley.....	Denver
Wildy, Ruth Jeanette	Boulder
Willburn, Charles	Boulder
Willburn, Nancy	Boulder
Williams, Maryan	Greeley
Williams, Mina Clare.....	Saguache
Williams, Phyllis Etta.....	Oak Creek
Willson, John Alfred.....	Denver
Wilson, Donald Harlow.....	Denver
Wilson, Joe Mack.....	Canon City
Wilson, Lawrence.....	Tennessee, Illinois
Witemyer, Jessie L.....	Boulder
Wood, John Paul.....	Waco, Texas
Wray, Jess Ward.....	Olathe
Wright, John Charles.....	Denver
Wylie, Maurine Quinn.....	Denver
Yockey, Pauline	Boulder
Young, Clarence Whitford.....	Grand Junction
Younger, Gilbert O.....	Denver
Zigmond, Helen Frances.....	Denver

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SPECIAL STUDENTS

NAME	RESIDENCE
Alexander, William Acel.....	Denver
Allen, Theodore	Denver
Anderson, Addie A., A.B.....	Montrose
Benford, Maurice Irving.....	Boulder
Bennett, Stanley William.....	Boulder
Brelsford, Harold Parvin.....	Eastland, Texas
Calkins, Irven Ross.....	Boulder
Chadbourne, Theodore L.....	Vinton, Iowa
Davenport, Hugh	Sterling
Duncan, Elizabeth Lucile.....	Columbia, Missouri
Ellett, Elizabeth Lane.....	Browning, Missouri
Ford, Earl	Lamar
Ginsburg, William Louis.....	Denver
Goodstein, Harry	Denver
Gorman, Phil J.....	Fort Lupton
Hall, Irma May.....	Stickney, South Dakota
Hawley, Robert Hershel.....	Newton, Kansas
Hodgeman, Alexander Earle.....	Philadelphia, Pennsylvania
Houghton, Edna F.....	Boulder
Hubbard, Helen Elizabeth.....	Boulder
Huston, Hazel Helen.....	Fortescue, Missouri
Irwin, Herbert Samuel.....	Boulder
Jelfs, Jack Thornton.....	Raton, New Mexico
Johnson, Jacob Lee.....	Fort Lupton
Jones, John Lewis.....	Monroe, Utah
Jung, Manner O.....	Topeka, Kansas
Kaufman, Nellie Elizabeth.....	Colorado Springs
Kelly, Charles James.....	St. Johns, Newfoundland
Larsen, Clarence Chester.....	Boulder
Lippman, Mortimer Latz.....	Atlantic City, New Jersey
Lyon, Bessie A.....	Boulder
McCutcheon, Ralph Brainard.....	Greeley
Malone, Dorothy Alice.....	Denver

NAME	RESIDENCE
Meredith, Elizabeth C.....	Boulder
Miller, Ruth Elizabeth.....	Boulder
Mitchell, Fred Rudolph.....	Boulder
Moritz, Carl Elstun.....	Emporia, Kansas
Mosher, Edith.....	Mileston, Mississippi
Moyer, L. Hollister.....	Boulder
Parker, Malleva McKee.....	Boulder
Parrish, Clarence Cecil.....	Scotts Bluff, Nebraska
Perry, John Warren.....	Delaware, Ohio
Poe, Frances E. Woland.....	Boulder
Quinn, Kathryn Elizabeth.....	Hastings, Nebraska
Read, Margaret Williams, A.B.....	Boulder
Riley, Grace Evelyn.....	Denver
Robertson, James Guy.....	Boulder
Roll, Alfred Joseph.....	Ellsworth, Minnesota
Rosene, Harry E.....	Fort Dodge, Iowa
Rule, Irene.....	Chattanooga, Tennessee
Rust, Gregory Delgado.....	Boulder
Shaff, Amy Mary.....	Los Angeles, California
Smith, Vesta.....	Parsons, Kansas
Stewart, Helen M.....	Boulder
Stowe, Judson Vincent.....	Pueblo
Tighe, Thomas, Jr.....	Chicago, Illinois
Townsend, Marie Lillian.....	Boulder
Van Dyke, Roy.....	Boulder

COLLEGE OF ENGINEERING

SENIOR CLASS

NAME		RESIDENCE
Anderson, Glenn	M.E.	Boulder
Blom, Max	E.E.	Boulder
Brown, James S.	C.E.	Denver
Buck, Arnold	M.E.	Denver
Bunting, Joseph	M.E.	Lafayette
Caughey, Clarence	M.E.	Boulder
Clark, Thomas H.	E.E.	Eureka
Crowley, Corydon H.	E.E.	Boulder
Devenish, George	M.E.	Denver
Divine, Howard E.	M.E.	Palisade
Dougherty, Vivian C.	M.E.	Salida
Dunstone, Arnold E.	E.E.	Denver
Eastom, Frank A.	E.E.	Denver
Elder, Andrew D.	Ch.E.	Colorado Springs
Farrar, Clyde Leo	E.E.	Myrtle Creek, Oregon
Harris, Albert	M.E.	Aspen
Harry, John	C.E.	Canon City
Huntington, Everett S.	C.E.	Denver
Hutchins, Hamilton E.	C.E.	Boulder
Inman, Brayton J.	C.E.	Boulder
Jennings, Frank A.	C.E.	Pueblo
Johnson, Jerome	M.E.	Gunnison
Jones, Daniel S.	C.E.	Center
Kerr, Clarence	E.E.	Globe, Arizona
Koernig, Raymond C.	M.E.	Denver
Lallie, Anthony S.	E.E.	Los Angeles, California
Lillie, Charles W.	E.E.	Denver
McFarlane, Frank Lloyd	M.E.	Denver
McNerney, Townsend	Ch.E.	Denver
Meyer, Harry	C.E.	Denver
O'Kelly, Francis C.	E.E.	Telluride
Parr, Elza W.	C.E.	Boulder
Patterson, Ernest G.	Ch.E.	Fort Morgan
Peterson, William C.	C.E.	Denver
Pinsky, Joseph	M.E.	Denver
Robertson, Oscar L.	M.E.	Denver
Rust, Edgar Hoyt	E.E.	Boulder
Schrepferman, Chester M.	C.E.	Denver
Sellers, Jesse E.	Ch.E.	Boulder
Seyler, Paul K.	E.E.	Denver
Shapiro, Isadore	Ch.E.	Denver
Stiefel, Alfred C.	C.E.	Denver
Stubbs, Frank W.	C.E.	Ridgway
Suess, Willard F.	E.E.	Denver
Vail, Kenyon C.	Ch.E.	Denver
Wadley, Frederick H.	Ch.E.	Denver
Wylam, Clarence C.	M.E.	Boulder

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JUNIOR CLASS

NAME		RESIDENCE
Abrams, Richard H.	C.E.	Butler, Pennsylvania
Allan, Walter J.	M.E.	Denver
Almgren, Earl	E.E.	Fairplay
Altwater, Herbert G.	C.E.	Denver

NAME		RESIDENCE
Anderson, David F.....	E.E.	Collbran
Andrews, Lloyd E.....	C.E.	Keota
Bagley, Walter G.....	M.E.	Rouse
Bahret, Clarence A.....	Ch.E.	Denver
Beresford, Kenneth.....	E.E.	Boulder
Blanchard, Paul A.....	M.E.	Boulder
Brainard, Boyd B.....	M.E.	Denver
Brickler, Alexander J.....	M.E.	Denver
Bronson, Hubert D.....	E.E.	Idaho Springs
Burbank, Warner V.....	E.E.	Red Cliffe
Burroughs, Earl R.....	M.F.	Boulder
Card, Lawrence B.....	M.E.	Denver
Carlson, Paul H.....	Ch.E.	Twin Falls, Idaho
Carpenter, Marion S.....	Ch.F.	Denver
Cassell, Wallace L.....	E.E.	Greybull, Wyoming
Chamberlin, Berton E.....	M.E.	Craig
Clampitt, Audis B.....	Ch.E.	Mancos
Clark, Albert F.....	Ch.E.	Mancos
Clifford, Joseph M.....	E.E.	Boulder
Cohig, James F.....	C.E.	Denver
Cole, Thomas D.....	M.E.	Denver
Collins, Arthur L.....	M.E.	Denver
Connell, Harry H.....	C.E.	Insmont
Cooper, Rolla K.....	M.E.	Boulder
Cowger, Winslow L.....	M.E.	Boulder
Crocker, Leslie H.....	Ch.F.	Denver
Daniels, Frank J.....	M.E.	Denver
Denning, Jay Wayne.....	M.F.	Denver
Dice, Marion E.....	Ch.E.	Lafayette
Dickey, Donald E.....	Ch.E.	Windsor
Dimm, Walter L.....	Ch.E.	Denver
Doolittle, Frederick B.....	E.E.	Aspen
Ericson, Albert.....	E.E.	Boulder
Faires, Virgil M.....	M.E.	Atlanta, Georgia
Feldmann, Merrick R.....	E.E.	Denver
Funk, Herman.....	E.E.	Fort Lupton
Griffith, Paul E.....	M.F.	Milliken
Gross, Leo H.....	E.E.	Denver
Harms, Henry B.....	M.F.	Loveland
Hebel, Ivan Lee.....	Ch.E.	Denver
Hieronymus, Rex E.....	E.F.	Denver
Horner, Arthur S.....	C.F.	Topeka, Kansas
Horton, Carroll T.....	E.E.	Denver
House, Cadwell B.....	M.E.	Boulder
Irion, James Robert.....	E.E.	Denver
Jacobson, Norman I.....	C.E.	Boulder
Johnson, Carl H.....	C.E.	Boulder
Johnson, Kent W.....	C.E.	Boulder
Keel, Howell C.....	E.E.	Boulder
Keeler, Harry F.....	M.E.	Longmont
Keeler, Raymond C.....	Ch.E.	Denver
Kiefer, Clarence V.....	C.E.	Fruita
Kohler, Frederick W.....	M.E.	Boulder
Kretschmer, Charles, Jr.....	E.E.	Pueblo
Lawrence, Van Buren.....	M.E.	Boulder
Lee, John A.....	E.E.	Boulder
Lehman, Lyle G.....	E.E.	Lamar
Lewis, Perley M.....	C.E.	La Junta
Longenberger, Lamar.....	Ch.E.	Hazelton, Idaho
McNeal, Donald H.....	C.E.	Denver
MacIntyre, Wallace J.....	M.E.	Florence
Major, William D.....	M.E.	Telluride
Mauntel, Charles Ivan.....	E.E.	Alva, Oklahoma
Mellors, Thomas.....	E.E.	Boulder
Milner, Carlisle K.....	M.E.	Arvada

NAME		RESIDENCE
Morgan, Harry A.	E.E.	Boulder
Musser, John	Ch.E.	Denver
Nossaman, Robert J.	M.E.	Pagosa Springs
Oliver, Chester B.	C.E.	Boulder
Palmer, Dewey H.	M.E.	Boulder
Palmer, Harland B.	E.E.	Denver
Pneuman, Fred A.	C.E.	Denver
Price, Julius F.	M.E.	Boulder
Pringle, Herman	C.E.	Denver
Purinton, Roy	E.E.	Denver
Randall, William Austin	C.E.	Boulder
Read, Chester L.	Ch.E.	Sterling
Redd, Samuel B.	M.E.	Boulder
Rettenmeyer, Francis X.	E.E.	DeBeque
Rixford, Charles O.	M.E.	Denver
Robertson, Lawrence M.	E.E.	Denver
Schnadmill, Maximilian M.	C.E.	Denver
Schuch, Leland S.	E.E.	Denver
Shapiro, Charles H.	Ch.E.	Denver
Souza-Soares, Affonso B.	C.E.	Portugal
St. Clair, James A.	M.E.	Longmont
Sylvester, T. Donnell	E.E.	Boulder
Toohar, James L.	E.E.	Pueb
Tovani, Ernest P.	E.E.	Denver
Vastine, Marvin W.	M.E.	Fowler
Vidal, Emile	Ch.E.	Denver
Vidal, Henri	Ch.E.	Denver
Vincent, John T.	E.E.	Victor
Wall, Harold F.	E.E.	Denver
Walz, Frank C.	E.E.	Pueblo
Whiteside, Wallace	M.E.	Fort Lupton
Wigginton, Frank C.	Ch.E.	Denver
Willard, James Lee	C.E.	Denver
Williams, O. Sherwood	E.E.	Greeley
Williams, Verne J.	C.E.	Golden
Withers, Jack N.	C.E.	Dolores

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SOPHOMORE CLASS

NAME		RESIDENCE
Acosta, Martin	M.E.	Philippine Islands
Adams, Marvyn S.	E.E.	Denver
Agnew, Ralph P.	E.E.	Denver
Allen, H. Stanley	M.E.	Deadwood, South Dakota
Allen, Willard J.	M.E.	Cripple Creek
Allred, Ivan A.	C.E.	Denver
Arnold, Otto B.	E.E.	Denver
Bailey, James O.	M.E.	Canon City
Baker, Bertrand M.	C.E.	Denver
Baker, Irving Monroe, Jr.	M.E.	Denver
Baker, Willard D.	M.E.	Pueblo
Barth, Albert H.	Ch.E.	Arvada
Belcher, Alexander G.	E.E.	Boulder
Bennett, Wilmot N.	C.E.	Hotchkiss
Beveridge, George	C.E.	Olathe
Blake, Frank J.	E.E.	Denver
Bowden, Charles S.	C.E.	Boulder
Bowman, Donald W.	M.E.	Breckenridge
Braukman, Clarence A.	E.E.	Denver
Brewer, Richard N.	C.E.	Jerome, Idaho
Brown, Jackson, Jr.	C.E.	Topeka, Kansas
Buckland, Bruce O.	M.E.	Walsen
Bullock, Philip W.	M.E.	Merino
Burbank, Frank L.	E.E.	Red Cliffe
Campiglia, Eugene	E.E.	Denver

NAME		RESIDENCE
Card, George H.	C.E.	Denver
Carswell, Frank L.	C.E.	Boone, Iowa
Carter, Ike N.	C.E.	Cuero, Texas
Caywood, Russell E.	E.E.	Denver
Chamberlin, Merton H.	M.E.	Craig
Chandler, Fred A.	Ch.E.	Denver
Chapin, Noel	M.E.	Meeker
Clifford, Charles J.	E.E.	Boulder
Coffey, Henry R.	E.E.	Denver
Coleman, Glenn A.	M.E.	Saguache
Coleman, LeRoy C.	M.E.	Saguache
Craise, Frederick L.	Ch.E.	Denver
Cresto, Victor E.	M.E.	Trinidad
Cuneo, Joseph	Ch.E.	Boulder
Custer, Brooks	M.E.	Boulder
Davis, Cameron L.	C.E.	Kalamazoo, Michigan
Denman, Richard T.	M.E.	Denver
Denslow, Clyde B.	M.E.	Denver
Derrington, Edward R.	M.E.	Pueblo
Dewey, Glen H.	E.E.	Pueblo
Dexheimer, Paul W.	M.E.	Denver
Dick, Henry V.	Ch.E.	Denver
Dickerman, Edward D.	Ch.E.	Leadville
Doud, Arthur M.	E.E.	Silverton
Eckel, John G.	C.E.	Denver
Edmunds, Philip C.	E.E.	Wray
Elliot, Richard	C.E.	Colorado Springs
Emerson, Warren Melson	Ch.E.	Chicago, Illinois
Evans, Carl D.	M.E.	Sterling
Fertig, Wendell W.	Ch.E.	La Junta
Fisher, Andrew Jackson	M.E.	Boulder
Frantz, Frank, Jr.	C.E.	Denver
Freeman, Frank	C.E.	Denver
Frobes, Clarence D.	Ch.E.	Boulder
Frobes, Daniel C.	Ch.E.	Boulder
Fuller, Harry C.	E.E.	Eagle
Gagg, Rudolph F.	M.E.	Durango
Garland, Clyne F.	M.E.	Boulder
Garlett, Samuel	E.E.	Denver
Gimlett, Irwin S.	M.E.	Salida
Given, Jacqueline	Ch.E.	Pueblo
Goss, Cecil G.	Ch.E.	Boulder
Graeber, Rowland	Ch.E.	Denver
Graham, Charles W., Jr.	M.E.	Boulder
Greenlee, William D.	M.E.	Denver
Gross, Alonzo Clarence	Ch.E.	Trinidad
Hahnwald, Carlos J.	E.E.	Denver
Hahnwald, Paul A.	E.E.	Denver
Hamilton, Reynolds J.	C.E.	Knoxville, Alabama
Handy, Robert	C.E.	Boulder
Hardy, Wendell W.	M.E.	Montrose
Heckendorn, George J.	M.E.	Greeley
Herzberger, Cecil L.	E.E.	Fowler
Heydrick, Harold F.	C.E.	Muskogee, Oklahoma
Hill, Arthur L.	M.E.	Denver
Hoffmeister, Harold A.	Ch.E.	Boulder
Howe, David F., Jr.	Ch.E.	Denver
Hoxie, Louis C.	E.E.	Boulder
Hutchings, Donald C.	E.E.	Arvada
Hutton, Fred L.	C.E.	Florence
Inman, Merrill B.	E.E.	Windsor
Jack, Delbert E.	M.E.	Florence
Jones, Evan R.	E.E.	Englewood
Kahn, Joseph	M.E.	Denver
Kellar, Herbert A.	E.E.	Boulder

NAME	RESIDENCE
Keller, Charles W.	E.E. Denver
Kennedy, Joseph	Ch.E. Okmulgee, Oklahoma
King, Robert C.	C.E. Junction City, Kansas
Kirkpatrick, Paul W.	E.E. Denver
Kitch, Donnell F.	C.E. Cheyenne Wells
Knapp, Albert M.	E.E. Denver
Knowles, Donald	M.E. Denver
Knuth, Harold W.	C.E. Westcliffe
Lackner, Jacob	M.E. Denver
Leibovitz, Harry	C.E. Denver
Lenger, Leonard	C.E. Fort Morgan
Lester, Oliver C.	Ch.E. Boulder
Lindrooth, Charles M.	M.E. Denver
Linsenmaier, William R.	C.E. Denver
Lomax, Stanley	C.E. Boulder
Lorje, Herman	E.E. Denver
Lowes, Gilbert E.	E.E. Sedgwick
Lunsford, John A.	C.E. Springer, New Mexico
McGrew, Robert M.	Ch.E. Caney, Kansas
McKenna, Leslie Hugh	M.E. Breckenridge
McLean, Kenneth G.	Ch.E. Leadville
McNerny, Clyde F.	M.E. Denver
McNutt, William H.	E.E. Hobart, Oklahoma
Mann, Hayard W.	C.E. Boulder
Marshall, Harold W.	M.E. Denver
Mercer, Glen L.	C.E. Boulder
Merrill, Marcellus S.	E.E. Steamboat Springs
Meyer, Alva H.	M.E. Denver
Moler, Francis L.	M.E. Denver
Montgomery, William L.	C.E. Edgewater
Morris, Virgil I.	Ch.E. Colorado Springs
Morsch, Harold J.	Ch.E. Denver
Neuman, Clarence F.	E.E. Denver
Neve, Henry	C.E. Denver
Nichols, Earl E.	C.E. Austin
Nichols, Edgar	E.E. Denver
Nichols, R. Chester	C.E. Austin
Oberholtz, Lester	C.E. Denver
O'Brien, Roy E.	C.E. Dawson, New Mexico
Oldenburg, Paul R.	E.E. Glenwood Springs
Paige, Frederick	C.E. Terre Haute, Indiana
Palmer, Harold C.	Ch.E. Boulder
Porter, Donald L.	E.E. Quinter, Kansas
Porter, Russell W.	E.E. Boulder
Poteet, James H.	C.E. Denver
Powell, George W.	C.E. Las Animas
Purl, Rutherford Keith	Ch.E. Carrollton, Illinois
Putnam, Russell C.	E.E. Indianapolis, Indiana
Randell, Russell R.	E.E. Denver
Rankin, Harold T.	E.E. Denver
Raymond, Hubert N.	E.E. Durango
Richardson, Harmon C.	C.E. Boulder
Richardson, Harold W.	C.E. Boulder
Richardson, William E., Jr.	C.E. Boulder
Richter, George	M.E. Denver
Ross, Robert V.	E.E. Ordway
Rouner, Thomas J.	C.E. Genoa
Runyan, Howard	E.E. Denver
Schmid, Norman	C.E. Denver
Schuerman, Laurence	E.E. Loveland
Seaman, Kermit G.	E.E. Denver
Seeberg, Clarence H.	M.E. Boulder
Smetzer, Bernard O.	C.E. Denver
Smith, Howard E.	E.E. Denver
Smith, William E.	M.E. Denver

NAME		RESIDENCE
Snider, Wade M.	Ch.E.	Abilene, Kansas
Stader, Edwin J.	Ch.E.	Toledo, Ohio
State, Constantine N.	M.E.	New York City
Sterne, Charles S.	E.E.	Denver
Stevenson, Harry B.	Ch.E.	Leadville
Stewart, Edgar E.	C.E.	Denver
Stilwell, Mortimer F.	M.E.	Denver
Stine, Charles F.	E.E.	Dresden, Missouri
Stokes, John T.	C.E.	Boulder
Stone, Clarence A.	E.E.	Boulder
Strange, Orman M.	M.E.	Boulder
Sutherland, Ignatius	E.E.	Denver
Sweet, Charles L.	C.E.	Mapleton, Iowa
Taylor, Albert L.	Ch.E.	Florence
Thomas, George H.	Ch.E.	Denver
Tilden, George F.	C.E.	Boulder
Trinnier, J. Thurston	M.E.	Denver
Tucker, James R.	E.E.	Boulder
Turner, Edgar P.	M.E.	Greeley
Tyler, William H.	E.E.	Pueblo
Vidal, Louis B.	M.E.	Denver
Vidal, Numa	E.E.	Denver
Vorenberg, Saul	M.E.	Wagon Mound, New Mexico
Wallace, Arthur W.	C.E.	Boulder
Wallace, John J.	C.E.	Ladoga, Indiana
Ware, Charles M.	M.E.	Salt Lake City, Utah
Wastfield, Walter B.	E.E.	Denver
Waterman, Douglas R.	Ch.E.	Denver
Watson, Max K.	M.E.	Casper, Wyoming
Webber, Henry A.	Ch.E.	Creede
Weber, Lester J.	M.E.	Englewood
Weil, Theodore E.	M.E.	Lafayette, Indiana
Whiteaker, George H.	M.E.	Simla
Whiteside, Frederick K.	C.F.	Denver
Widmayer, Fred C.	M.E.	Denver
Woods, Robert G.	M.E.	Montrose
Woolsey, William W.	C.E.	Meeker
Work, Robert V.	M.E.	Pueblo
Young, Dwight S., Jr.	M.E.	Denver

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FRESHMAN CLASS

NAME	RESIDENCE
Addington, John M.	Montrose
Anderson, Dale	Vona
Arnold, Glenn C.	La Junta
Atha, Robert W.	Columbus, Ohio
Atkinson, Roy G.	Sunrise, Wyoming
Austin, George C.	Denver
Bailey, Neil P.	Eckert
Bailey, Robert	Twin Falls, Idaho
Baker, Arvid Harry	Denver
Bard, Joe R.	LaSalle, Illinois
Barger, Reginald R.	La Junta
Barry, Robert H.	Denver
Bauer, Morris	Brighton
Beall, Thornton	Canon City
Bears, Virgil	Denver
Berninger, Peter T.	Austin
Binkley, Arlie	Grand Junction
Bird, Edward F.	Denver
Blanke, Irving H.	Grand Junction
Bonelli, Carl Edward	Boulder
Boyer, Stacy E.	Boulder
Boylston, DuBose	Denver

NAME	RESIDENCE
Brollen, Herman G.....	Windsor
Brown, Noble J. W.....	Boulder
Burtis, Ernest Thayer.....	Phoenix, Arizona
Bush, C. Cullen.....	Denver
Butler, Kenneth A.....	Denver
Caldwell, Harold F.....	Morrisonville, Wisconsin
Callow, Charles A.....	Platteville
Carpenter, Charles B., Jr.....	Denver
Catron, Murry A.....	Boulder
Caulfield, Joseph R.....	Leon, Iowa
Chason, John Wesley.....	Ochlochuee, Georgia
Chisholm, Colin H.....	Denver
Clark, Bryan E.....	Boulder
Clements, Edwin P., Jr.....	Ord, Nebraska
Cleveland, Delbert	Boulder
Closs, Carl	Arvada
Cogswell, Frank D.....	Boulder
Conger, Owen K.....	Trinidad
Connelly, Louis A.....	Denver
Craig, Homer V.....	Boulder
Crandell, Clarence L.....	DeBeque
Crocker, Francis F.....	Denver
Crow, Ralph L.....	Romeo
Davis, Chester E.....	Boulder
Davis, Elwyn J.....	Boulder
Davis, George A.....	Red Lodge, Montana
Dean, Allen T.....	Boulder
DeKraker, Glenn M.....	Boulder
Delez, Arthur L.....	Leadville
Denslow, Ford H.....	Denver
Domke, George	Boulder
Doud, Henry M.....	Silverton
Duee, James H.....	Longmont
Dunn, Thomas H.....	Gorham
Durward, Lawrence A.....	Boulder
Eddy, Raymond W.....	Victor
Etzel, Gastão	Boulder
Fabrizio, Ernest N.....	Pueblo
Ferris, John A.....	Austin, Texas
Fidel, Leo Arthur.....	Grand Junction
Ford, John Lewis.....	Meeker
Frame, William Melvin.....	Sterling
Gertsen, Melvin Falk.....	Boulder
Gibbons, Charles A.....	Wheatland, Wyoming
Goemmer, George Adolph.....	La Veta
Gowin, Wilkes W.....	Amarillo, Texas
Grandy, Jay M.....	Pueblo
Gray, Dwight Erwin.....	Gunnison
Gray, Homer W.....	Gunnison
Grout, E. Leonard.....	Denver
Guerin, Fred F.....	Denver
Hahn, Ira	Rangely
Hammans, (Mr.) Bernice Glenn.....	Loveland
Harper, Earle	Yuma
Hart, Dudley W.....	Littleton
Hartman, Theodore	Longmont
Haworth, Rader	Keota
Hawthorn, David G.....	Denver
Herbert, Thomas G.....	Denver
Herman, Merlin E.....	Grand Junction
Herne, Wayne D.....	Boulder
Hippen, Ralph W.....	Denver
Hodges, William Stanley.....	Twin Falls, Idaho
Hoffman, George W.....	Denver
Hogg, William D.....	Colorado Springs

NAME	RESIDENCE
Hollingsworth, Daniel W.	Hemet, California
Holman, George William	Olathe
Holsapple, Lloyd	Boulder
Hovlid, Norman G.	Longmont
Hudson, Edward M.	Austin, Texas
James, Lloyd S.	Estes Park
Janke, Harold E.	Stratton
Jeffers, Karl W.	Ferris, Texas
Johnson, Charles P.	Denver
Johnson, D. Ronald	Missoula, Montana
Johnson, Haymon N.	Hazen, North Dakota
Johnson, Raymond	Crowheart, Wyoming
Kauffman, John Howell	Des Moines, Iowa
Keith, Clifford C.	Boulder
Kellogg, John Chet	Boulder
Kendrick, Hazen W.	Boulder
King, Francis	Boulder
Kline, Hayden B.	Denver
Knapp, David B.	Santa Fe, New Mexico
Kuhlman, Roy F.	Pawhuska, Oklahoma
Kyle, Robert L.	Meeker
Laughlin, Bert	Trinidad
Leabo, Clyde E.	Sterling
Leaming, Hugh M.	Greeley
Lenning, George	Brush
Leonhardy, Edwin C.	Fruita
Lewis, Charley A., Jr.	La Junta
Lindstrom, Einar	Craig
Longfellow, Arthur G.	Denver
Loser, Earl G.	Denver
Lovering, Frank R.	Pasadena, California
Luther, Kenneth	West Salem, Illinois
McBrayer, Walter Raleigh	Lester
McBride, Charles B.	Denver
McCann, W. Gerald, Jr.	Fort Lupton
McClure, Hugh J.	Muskogee, Oklahoma
McGlashen, Thomas B.	Swink
McKean, George S.	Jackson, Wyoming
McKenna, Gordon	Somerset
McRoberts, Edwin W.	Denver
McShane, William P.	Boulder
McWha, Robert D.	Gothenburg, Nebraska
MacDonald, Cameron R. A.	Denver
Magretta, Charles	Detroit, Michigan
Malm, Harry G.	Greeley
Marmaduke, Clement V.	Pueblo
Martelon, Erban Fred	Arvada
Martin, Jerome L.	Paonia
Marvin, Arthur S.	Canon City
Marx, George W.	Boulder
Mellett, John E.	Boulder
Miller, Milward	Denver
Miller, William H.	Conneaut, Ohio
Mitchell, Ralph B.	Sycamore, Illinois
Morris, Clarence R.	Denver
Mullgardt, Alex S.	Boulder
Munn, Walter	Pueblo
Murphy, John F.	Sterling
Nelson, Carl James	Victor
Nelson, Raymond J.	Trinidad
Niccoli, Mike A.	Trinidad
Niven, Clarence E.	Longmont
Noll, Henry D.	Brooklyn, New York
Norris, Chester	Cripple Creek
O'Day, David W.	Lafayette

NAME	RESIDENCE
Off, Ralph John.....	Denver
Osberg, Paul R.....	Boulder
Paden, Ralph P.....	Carr
Painter, Stafford C.....	Roggen
Parker, Vernon C.....	Boulder
Patten, J. Meredith.....	Clifton
Peters, Paul Oliver.....	Cheyenne, Wyoming
Peters, Ralph C.....	Boulder
Petersen, Howard B.....	East Las Vegas, New Mexico
Porter, Carl T.....	Dallas, Texas
Quinby, Freeman R.....	Denver
Rader, Joseph.....	Craig
Rathbun, Edward C.....	Denver
Rea, Hugh Evert.....	Canon City
Reed, Cecil B.....	Boulder
Reed, Enoch H.....	Wray
Reed, Myril.....	Evanston, Wyoming
Reeve, Jack D.....	Pueblo
RePass, Paul E.....	Boulder
Rethlefsen, Frank W.....	Boulder
Rice, J. E.....	Englewood
Richardson, Henry M.....	Boulder
Rixford, Cyrus R.....	Denver
Roberts, LeRoy A.....	La Junta
Robertson, Coe Fife.....	Caldwell, Kansas
Robinson, Louis S.....	Denver
Rogers, John H.....	Estes Park
Rogers, John Irvine.....	Lexington, Kentucky
Roush, Marshall.....	Lynchburg, Ohio
Sands, Gordon.....	Denver
Schelke, Charles V.....	Albuquerque, New Mexico
Schoonover, Lindley.....	Lynchburg, Ohio
Schreiner, Frank W.....	Boulder
Sewell, Jefferson.....	Denver
Sherman, William L.....	Sedgwick
Shoaf, R. Leonard.....	Taylor, Texas
Shute, Henry C.....	Denver
Simpson, Lester C.....	Boulder
Snyder, Rex L.....	Creston, Iowa
Soley, Joseph J.....	New York City
Spear, Wilfred Garnet.....	Boulder
Spillane, Francis T.....	Fort Morgan
Stahl, John.....	El Paso, Texas
Stanley, Thomas E.....	Johnstown
Stewart, Ralph W.....	Denver
Storms, Cecil.....	Boulder
Strader, Harold L.....	Cheyenne, Wyoming
Swenson, Adolph M.....	Denver
Tate, William H.....	Pueblo
Todd, Lester E.....	Loveland
Tucker, Edwin A.....	Boulder
Turpin, Alexander J.....	Grand Junction
Vale, Albert.....	Ward
Vorenberg, Adolph.....	Wagon Mound, New Mexico
Walter, Rudolph J., Jr.....	Denver
White, Harry Calvin.....	Boulder
Whittaker, Arthur J.....	Dawson, New Mexico
Williams, Albert A.....	Somerset
Williamson, William A.....	Rockvale
Winn, Jonathan Wright.....	Meeker
Wray, Philip R.....	Dublin, Texas
Wright, Joe I.....	Steamboat Springs
Young, Charles C.....	Denver
Zabriskie, Walter W.....	Pagosa Junction

SPECIAL STUDENTS

NAME	RESIDENCE
Bell, Robert P.	Denver
Brady, Samuel	Kansas City, Missouri
Brown, Paul J.	Denver
Buhl, Harry	Muskegon, Michigan
Byler, Jesse A.	Girard, Kansas
Cart, Ward B.	Boulder
Cogswell, Dwight C.	Boulder
Crawford, Marco B.	Denver
Dannelly, John M.	Montgomery, Alabama
Harlow, Clifton	Eugene, Oregon
Hyslop, Clyde	Chicago, Illinois
Kamp, Donald H.	Detroit, Michigan
Leavitt, Mitchell	Boulder
Nicholls, Wallis W.	Sterling
Rose, Walter E.	Rosedale, Kansas
Ryley, Warfield	Boulder
Schillinger, Louis L.	Fosston
Schnell, Louis J.	Colorado Springs
Sheldon, William B.	Denver
Skinner, Webb	Denver
Stein, Jack	Denver
Stiles, Frank L.	Boulder
Summers, William G.	Denver
Taminga, John S.	Denver
Tucker, Ivan W.	Boulder
Varra, Michael	Fort Collins
Wilber, Fred R.	Wichita Falls, Texas
Wilch, Gabriel B.	Boulder

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VOCATIONAL STUDENTS*

NAME	RESIDENCE
Akerson, Theodore R.	Mech. Draft. Denver
Allinger, Bert F.	Mach. Shop. Buena Vista
Anderson, Hurlburt	Mech. Draft. Bridgeport, Connecticut
Andrich, John	Appl. Elect. Broomfield
Bainum, O. J.	Mech. Draft. Bellview, New Mexico
Bandy, John O.	Mech. Draft. Boulder
Bass, Harold L.	Auto. Mech. Boulder
Bauer, John	Auto. Mech. DeKalb, Illinois
Bemis, Roy E.	Appl. Elect. Broadview, Montana
Bergquist, Arthur H.	Appl. Elect. Salt Lake City, Utah
Benning, A. J.	Mech. Draft. Fostoria, Ohio
Bielinski, Edward	Mech. Draft. Milwaukee, Wisconsin
Bierwirth, E. D.	Appl. Elect. Denver
Blackstone, George E.	Mech. Draft. Casper, Wyoming
Boone, Robert	Auto. Mech. Carlisle, Indiana
Borski, Robert A.	Mach. Shop. East Lake, Michigan
Bradford, William E.	Appl. Elect. Pueblo
Braun, Perl Edward	Appl. Elect. Hollidays Cove, W. Virginia
Bril, Pantaleon A.	Auto. Mech. Rizal, Philippine Islands
Brown, Charles W.	Appl. Elect. Cortez
Buck, Leslie F.	Appl. Elect. Hartman
Butcher, Fred P.	Sta. & Steam Eng. Westport, So. Dakota
Cameron, John	Auto. Mech. Paterson, New Jersey
Caulfield, Joseph	Mech. Draft. Leon, Iowa
Clary, William G.	Appl. Elect. Ellis, Kansas
Cuenin, Fred D.	Appl. Elect. Salida
Culverwell, Ernest A.	Appl. Elect. Craig

* Registered in vocational courses, not of college grade, offered in co-operation with the Federal Board for Vocational Training.

NAME	RESIDENCE
Curtis, Leslie D.....	Appl. Elect.....Canon City
Davis, George D.....	Mach. Shop.....Less Summit, Missouri
Deranleau, Lucien	Appl. Elect. ....Sterling
Dodge, William H.....	Auto. Mech. ....Denver
Doolittle, Lloyd A.....	Mach. Shop.....Boulder
Dressor, Charles F.....	Appl. Elect.....Rocky Ford
Dye, Donald E.....	Mech. Draft.....Dayton, Ohio
Edwards, Calvin F.....	Appl. Elect.....Colorado Springs
Elder, Joseph	Auto. Mech. ....Boulder
Ely, Edward	Mech. Draft.....Kenney, Illinois
Eiges, Esteban E.....	Auto. Mech. Zambales, Philippine Islands
Elder, Joseph	Auto. Mech. ....Boulder
Fairchild, D. D.....	Appl. Elect. ....Boulder
Falck, Edwin O.....	Appl. Elect. ....Boulder
Falkenhagen, Fred L.....	Appl. Elect. ....Denver
Fetters, Elmer.....	Auto. Mech. ....Mesa
Forrest, Gerald M.....	Appl. Elect. ....Springer, New Mexico
Frey, William Walter.....	Appl. Elect. ....Basalt
Fried, James Russel.....	Auto. Mech. ....Oakland, Nebraska
Friele, Raymond F.....	Auto. Mech. ....Boulder
Glenn, Euell G.....	Auto. Mech. ....Chattanooga, Tennessee
Gutierrez, Alphonse	Auto. Mech. ....Raton, New Mexico
Hale, H. G.....	Appl. Elect. ....Fort Sumner, New Mexico
Harman, Ralph E.....	Mach. Shop.....Boulder
Hollinger, Paul B.....	Appl. Elect. ....Lisbon, Ohio
Holt, Lester H.....	Auto. Mech. ....Boulder
Hosner, Edwin W.....	Appl. Elect. ....Ouray
Hughes, William F.....	Appl. Elect. ....Algiers, Louisiana
Hughey, Louis D.....	Appl. Elect. ....Boulder
Hurley, Lawrence	Mech. Draft.....Fort Lupton
Johnson, William D.....	Mech. Draft....Mountain Creek, Alabama
Johnston, Howard	Auto. Mech. ....Boulder
Jorgensen, Harry B.....	Mech. Draft.....Springfield, Illinois
Kelly, John W.....	Appl. Elect. ....Ridgway
Klingler, Arthur E.....	Appl. Elect. ....Lead, South Dakota
Kouns, Andrew S.....	Mach. Shop.....Rocky Ford
Larkin, Howard E.....	Auto. Mech. ....Boulder
Law, George C.....	Appl. Elect. ....Pueblo
Leahy, Michael J.....	Mech. Draft....Mountain View, Wyoming
Lippincott, Harry	Mech. Draft.....Boulder
Lotspeich, Robert R.....	Auto. Mech. ....Sheridan, Wyoming
Lynch, Ambrose M.....	Auto. Mech. ....Denver
McGlashen, William A.....	Mech. Draft.....Boulder
McCowan, Charles Henry.....	Auto. Mech. ....Boulder
McCown, Van.....	Mach. Shop.....Boulder
McFarland, Lyle L.....	Auto. Mech. ....Colorado Springs
Madison, Jesse Charles.....	Appl. Elect. ....Limon
Magnus, Eugene William.....	Mech. Draft.....Sterling
Mehus, Nils	Mech. Draft.....Baltimore, Maryland
Meier, Russell L.....	Appl. Elect. ....Boulder
Merrell, Othal J.....	Appl. Elect. ....Boulder
Miles, William Carl.....	Appl. Elect. ....Boulder
Mitchell, Bertrand B.....	Auto. Mech. ....Boulder
Mitchell, Ralph B.....	Auto. Mech. ....Sycamore, Illinois
Newton, William O.....	Appl. Elect. ....Denver
Nicholls, Wallis W.....	Mech. Draft.....Sterling
Norris, Theodore	Mach. Shop.....Denver
Oczkowski, Constantine L.....	Appl. Elect. ....Chicago, Illinois
O'Leary, John C.....	Mech. Draft....Philadelphia, Pennsylvania
Peterson, Fred H.....	Auto. Mech. ....Boulder
Porter, William A.....	Appl. Elect. ....Denver
Potter, O. L.....	Mech. Draft.....Boulder
Rachford, William S.....	Appl. Elect. ....Oconto, Wisconsin
Rafferty, Edward J.....	Mech. Draft.....Boulder
Randall, John C.....	Appl. Elect. ....Howell, Wyoming

NAME		RESIDENCE
Real, John A.....	Appl. Elect.	Ophir
Reed, Cecil B.....	Appl. Elect.	Tecumseh, Oklahoma
Reeves, William S.....	Auto. Mech.	Boulder
Robinson, Herbert N.....	Appl. Elect.	Denver
Roots, Robert D.....	Auto. Mech.	Denver
Sewelewicz, Anthony	Mach. Shop	Boulder
Shayewitz, Morris	Mech. Draft.	Denver
Shelledy, John A.....	Mech. Draft.	Boulder
Smith, Earl J.....	Mach. Shop	Denver
Smith, George E.....	Mech. Draft.	Louisville
Smith, Guerdon W.....	Appl. Elect.	Boulder
Smith, Joseph W.....	Mech. Draft.	Denver
Smith, Marion A.....	Appl. Elect.	Turkey, Texas
Stearns, Cloyde L.....	Mech. Draft.	Mt. Gilead, Ohio
Sullivan, Michael P.....	Appl. Elect.	Butte, Montana
Swartz, Markham	Appl. Elect.	Philadelphia, Pennsylvania
Szczepanik, Stanley	Mech. Draft.	Denver
Tenczar, Wicenty	Mach. Shop	Denver
Terry, Alexander	Appl. Elect.	Bound Brook, New Jersey
Thomas, Lattie K.....	Appl. Elect.	Boulder
Thomas, William E.....	Auto. Mech.	Trinidad
Unger, Charles P.....	Mech. Draft.	Denver
Unsworth, H Norman.....	Auto. Mech.	Denver
Varra, Michael	Appl. Elect.	Fort Collins
Westbrook, Joseph A.....	Appl. Elect.	Sandford
Westbrook, Thaddeus W.....	Sta. & Steam Eng.	Portsmouth, Virginia
White, F. E.....	Appl. Elect.	Denver
White, Russell R.....	Appl. Elect.	Denver
Wilson, David E.....	Appl. Elect.	Boulder
Wilson, Herbert B.....	Auto. Mech.	Canon City
Wilson, Waldo M.....	Auto. Mech.	Canon City

GRADUATE SCHOOL

NAME	RESIDENCE
Abbitt, William Henry, A.B.....	Hopkinsville, Kentucky
University of Virginia, 1919.	
Abbott, Franz David, Litt.B.....	Erie, Pennsylvania
Grove City College, 1916.	
Chemistry, Mathematics.	
Alden, Ruth Viola, A.B.....	Wyoming, Iowa
Grinnell College, 1915.	
Mathematics, Physics.	
Anderson, Hattie Rebecca, B.S., A.B.....	LaCrosse, Wisconsin
Simmons College, 1916; University of Chicago, 1908.	
English Literature, English Language.	
Bassow, Solomon, B.S.....	New York City
University of Chicago, 1918.	
Bates, Sister M. Baseline, A.B., A.M.....	Boulder
Mt. St. Joseph College, 1908; Catholic University of America, 1914.	
Philosophy of Education, French, English.	
Baum, Eva Margaret, A.B.....	Salina, Kansas
University of Colorado, 1916.	
Chemistry, Determinative Mineralogy.	
Beattie, Wayne Stephenson, B.S.(M.E.).....	Boulder
University of Colorado, 1917.	
Mechanical Engineering.	
Becker, Frederick E.....	Fort Morgan
Biology, Chemistry.	
Bowler, Mary Angela.....	Denver
Mathematics.	
Brown, Frank Logan, B.S.(C.E.).....	Lawrence, Kansas
University of Colorado, 1911.	
Civil Engineering.	
Brown, Ralph Leigh, B.S.(M.E.).....	Palmerston, Pennsylvania
University of Colorado, 1910.	
Mechanical Engineering.	
Burlingame, Charles Raymond, B.S.(M.E.).....	Denver
University of Colorado, 1918.	
Mechanical Engineering.	
Burrus, Beatrice, A.B.....	Hugo, Oklahoma
University of Oklahoma, 1918.	
English Literature, English Language.	
Canfield, Robert Hawthorne, B.S.(C.E.).....	Denver
University of Colorado, 1915.	
Civil Engineering.	
Carmichael, Emmett Bryan, A.B.....	Boulder
University of Colorado, 1918.	
Chemistry, Mathematics.	
Chambers, Kathrine Lee, A.B.....	Boulder
Georgia Wesleyan College, 1904.	
Biochemistry, Pathology.	
Cleveland, Nellie Charline, A.B.....	Boulder
University of Colorado, 1919.	
Romance Languages.	
Collins, Melvin James, A.B.....	Denver
University of Colorado, 1919.	
Geology, Mineralogy, Paleontology.	

NAME	RESIDENCE
Cornell, Benjamin David, A.B., A.M..... University of Colorado, 1915, 1918. Chemistry.	Boulder
Cornell, Beulah G., A.B..... Colorado College, 1917. Chemistry.	Boulder
Crafts, Leland Whitney, B.S., A.M..... New Hampshire College, 1915; Clark University, 1920. Psychology, Sociology, Philosophy.	Newfields, New Hampshire
Daggett, William Athern, A.B..... Drury College, 1899. Education, Sociology.	Springfield, Missouri
Danielson, Ralph Wesley, A.B..... University of Colorado, 1920. Chemistry.	Boulder
Dow, Sarah Walker, A.B..... University of Colorado, 1899. English, Latin.	Denver
Dummeier, Edwin F., A.B..... Louisiana State University, 1918. Economics, History, Education.	Boulder
Dungan, Fred, B.S..... Doane College, 1890. Civil Engineering.	Boulder
DuVall, W. Clinton, B.S.(E.E.)..... University of Colorado, 1912. Electrical Engineering.	Boulder
Eaves, Elsie, B.S.(C.E.)..... University of Colorado, 1920.	Sterling
Eckel, Clarence Louis, B.S.(C.E.)..... University of Colorado, 1914. Civil Engineering.	Philadelphia, Pennsylvania
Elder, Charles M., B.S., B.P.E..... Penn College, 1908; Y. M. C. A. College, 1911.	Boulder
Ellett, Alexander..... Physics, Chemistry, Mathematics.	Boulder
Ewing, John D., A.B., A.M..... William Jewell College, 1916; Washington University, 1917. Economics, Education.	Wheatland, Wyoming
Fawcett, Gladys W., A.B..... University of Colorado, 1917.	Boulder
Fay, Marion Spencer, A.B..... Tulane University, 1915. Biochemistry, Bacteriology, Physiology.	New Orleans, Louisiana
Foster, Elsie M., A.B..... Oberlin College, 1920. Zoology, Botany.	Berlin Heights, Ohio
Frost, Mary Cooper, A.B..... University of Colorado, 1914. English Literature.	Denver
Gabriel, Alma, A.B..... University of Colorado, 1917. Education, Psychology, Sociology.	Denver
Garbarino, Lucinda Marie, A.B., A.M..... University of Colorado, 1901, 1902. Romance Languages.	Boulder
Gibson, Russell, A.B..... Washington University, 1920. Geology, Mineralogy.	Boulder

NAME	RESIDENCE
Hale, Ernest Thomas, A.B..... Oberlin College, 1908.	Cambria, Wyoming
Education, History.	
Hall, Mary Stella, A.B..... University of Colorado, 1918.	Boulder
Education, English Literature.	
Hanson, Herbert C., A.B., A.M..... University of Minnesota, 1914; University of Nebraska, 1916.	Boulder
Botany, Chemistry.	
Hashimzadé, Jalil Kahn.....	Tabriz, Persia
Geology.	
Hazard, William J., E.E..... Colorado School of Mines, 1897.	Golden
Henry, Carl D., Ph.B..... University of Colorado, 1902.	Boulder
Hill, William Henby, A.B..... University of Colorado, 1918.	Greeley
Mathematics, Physics.	
Howard, Jessie I., A.B..... University of Colorado, 1917.	Boulder
Howe, William Warren, A.B..... University of Colorado, 1915.	Pueblo
Organic Chemistry, Mathematics, Physics.	
Hutchinson, Charles Angevine, A.B., A.M..... Wittenberg University, 1916, 1918.	Boulder
Mathematical Physics, Mathematics, Astronomy.	
Johnson, Edna L., A.B..... University of Illinois, 1916.	Brimfield, Illinois
Botany, Entomology, Paleontology.	
Jones, Leonard Charles, A.B..... University of Colorado, 1915.	Boulder
Physics, Mathematics, Chemistry.	
Jordan, Louise, A.B..... Allegheny College, 1912.	Mansfield, Ohio
History, Education, Political Science.	
Klemme, Virginia, A.B..... Grinnell College, 1917.	Boulder
Lindsay, Russell H., E.E..... Lehigh University, 1918.	Harrisburg, Pennsylvania
Looms, George, Jr., Litt.B..... Princeton University, 1908.	Louisville, Kentucky
English Literature.	
McClintock, Clyde Hirsch, B.S.(M.E.)..... University of Colorado, 1916.	Denver
Mechanical Engineering.	
Mallory, Walter Frank, B.S.(M.E.)..... University of Colorado, 1914.	Boulder
Mechanical Engineering.	
Mann, Clair Victor, B.S.(C.E.)..... University of Colorado, 1914.	Rolla, Missouri
Civil Engineering.	
Marshall, Elma McLean, A.B., B.S., A.M..... Phillips University, 1915, 1916, 1918.	Enid, Oklahoma
Political Science, History.	
Mason, Marion A., B.S.(E.E.)..... University of Colorado, 1912.	Los Angeles, California
Electrical Engineering.	
Mosher, Edith, A.B..... Mississippi State College for Women, 1915.	Mileston, Mississippi
English Literature, History.	

NAME	RESIDENCE
Murphy, J. Russell, A.B..... University of Colorado, 1920. Economics.	Denver
Nafe, John Paul, A.B..... University of Colorado, 1911. Psychology, Philosophy.	Boulder
Nelson, Walter K., B.S.(E.E.)..... University of Colorado, 1916. Electrical Engineering.	Boulder
Page, Henry Anthony, B.S.(E.E.)..... University of Colorado, 1920. Electrical Engineering.	Denver
Pease, Carl James, B.S.(E.E.)..... University of Colorado, 1911. Electrical Engineering.	Denver
Read, Norman, B.S.(E.E.)..... University of Colorado, 1905. Electrical Engineering.	Denver
Reece, Richard Herbert, B.S.(E.E.)..... Kansas State Agricultural College, 1906. Mathematics.	Socorro, New Mexico
Rieder, Miriam, A.B..... University of Washington, 1915. Romance Languages, Germanic Languages.	Boulder
Settles, Claude N., A.B..... Wabash College, 1915. English Literature.	Boulder
Sharp, Marian H., A.B..... Leland Stanford University, 1917.	Boulder
Sherman, Marguerite, A.B..... University of Colorado, 1919. Romance Languages.	Boulder
Skinker, Murray Fontaine, B.S.(E.E.)..... University of Colorado, 1919. Physics, Mathematics.	Denver
Slusser, Horace G., A.B..... University of Colorado, 1911. Geology.	Boulder
Spencer, Richard Carleton..... Political Science.	Boulder
Sterling, Sybil Stewart, A.B..... University of Michigan, 1902. English Literature.	Boulder
Stone, Elinore Cowan, A.B..... Mt. Holyoke College, 1906. English Literature, English Language.	Boulder
Swayne, Ida Loyd, A.B..... University of Colorado, 1920. Chemistry.	Boulder
Tarkoff, Irma, A.B..... University of Colorado, 1920. History, Economics.	Boulder
Thorpe, John George, B.S.(E.E.)..... University of Colorado, 1918. Electrical Engineering.	Trinidad
Trolinger, Lelia, A.B..... University of Colorado, 1920.	Clinton, Missouri

NAME	RESIDENCE
Van Valkenburgh, Horace Bulle, B.S., M.S. University of Arkansas, 1905, 1912. Chemistry.	Boulder
Vincent, Leona Elizabeth, A.B. University of Colorado, 1919. Psychology, Philosophy.	Victor
Ward, Leon Stevens, A.B. Park College, 1912. Chemistry.	Fort Collins
West, Judson Ray, B.S. University of Colorado, 1903. Civil Engineering	Foochow, China
Whetsel, Elizabeth Davison, A.B. Smith College, 1917. English Literature, English Language.	Golden
Worcester, Dean Amory, A.B. University of Colorado, 1911. Psychology.	Emporia, Kansas

SCHOOL OF MEDICINE

FOURTH YEAR CLASS

NAME	RESIDENCE
Barnard, Hamilton I.....	Fowler
Bryson, Margaret Elizabeth.....	Denver
del Rosario, José Maria, A.B.....	Denver
Dwyer, Paul K.....	Creede
Goldfain, Ephraim	Denver
Harger, Chalmer M.....	Denver
*Henderson, John Taylor, A.B.....	Denver
Keim, Marie, A.B.....	Denver
Perkins, Earl James.....	Denver
Rosenbloom, Julius Lee.....	Denver
Sells, Virgil Emerald.....	Denver
Wear, Harry H.....	Denver
Westinghouse, Clarence D.....	Denver
Whitehead, Richard W., A.B.....	Breckenridge

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THIRD YEAR CLASS

NAME	RESIDENCE
Adams, Victor Kirk, A.B.....	Boulder
Bauer, Harry Meler.....	Denver
Beacom, Dean Nolan, A.B.....	Denver
Cook, Benjamin Franklin, B.S.....	Compton, Illinois
Eastlake, Alfred Chesmore.....	Denver
Fenton, Ward Caldwell.....	Rocky Ford
Greene, Laurence Whitridge.....	Le Sueur, Minnesota
Jaffa, Bertram Barr, A.B.....	Roswell, New Mexico
Keyes, Homer Richards.....	Denver
Mahoney, Louis Emmett.....	Boone, Iowa
Miller, Howard S., A.B.....	Denver
Nairn, George Waverly, A.B.....	Denver
Prey, DuVal, A.B.....	Denver
Scott, John Terrell, A.B., A.M.....	Lynchburg, Virginia
Sunderland, Orlo Ray.....	Denver
Yegge, W. Bernard.....	Denver

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SECOND YEAR CLASS

NAME	RESIDENCE
Bassow, Solomon Herbert, B.S.....	New York City
Burlingame, Robert Miles.....	Denver
Chambers, Kathrine Lee, A.B.....	Boulder
Coakley, Harry	Denver
Collier, Douglas R.....	Denver
Danielson, Ralph Wesley, A.B.....	Boulder
Dumm, Byron Innis, A.B.....	Casper, Wyoming
Elrick, LeRoy.....	Wichita, Kansas
Estrin, Morris Moses.....	Denver
Ham, Della Pauline.....	McClare
Harvey, Edward L.....	Denver
Hepplewhite, James Gladstone.....	Canon City
Laff, Herman Isaac.....	Denver
Lunsford, Charles Julian.....	Dallas, Texas
Miller, Arthur Henry, B.S., A.M.....	Boulder

* Died, March, 1921.

NAME	RESIDENCE
Nelson, Eli	Denver
Nelson, Sam	Denver
Porter, Alfred John.....	Greensburg, Pennsylvania
Rothwell, William David.....	Denver
Stein, Herman Benjamin.....	Lyons, Indiana
Viecelli, James Dominic.....	Sopris
Yaker, David N.....	Denver
Zarit, John Isadore.....	Denver

—23

FIRST YEAR CLASS

NAME	RESIDENCE
Alcantara, Pedro.....	Panay, Philippine Islands
Bishop, Frank Dewey.....	Denver
Bolles, Esther Janet.....	Denver
Butler, Ethel R., Ph.G.....	Denver
Butterfield, Olin Jack.....	Denver
Chernyk, Maurice	Denver
Cohn, Wilma Rosalie.....	Denver
Duffy, James D.....	Denver
Green, Louis	Denver
Hildebrand, Roy Dallas.....	Newcomerstown, Ohio
Hoch, Frank Michael.....	Wilson, Kansas
Hollub, James John.....	Schulenburg, Texas
Hopkins, Hugh J.....	Denver
Jensen, Henry	Kansas City, Kansas
Kenner, Howard Will.....	Boulder
Kopp, Benjamin	Boulder
Labarri�re, Jacques Louis, Ph.B.....	Paris, France
LeFevre, Harry Wilson, Jr.....	Denver
Lindsey, Maude Louise.....	Iowa Park, Texas
McAnlis, William Wilbur, A.B.....	Colorado Springs
Maier, Frank Julian.....	Boulder
Meredith, Lawrence Cornelius.....	Boulder
Ness, Ragnar J.....	Denver
Peavy, Ira L.....	Johnstown
Peer, Walter F.....	Keenesburg
Perry, Clarence L.....	Delaware, Ohio
Scheidegger, Elvin Franklin.....	Fort Morgan
Swenson, Reuben T., A.B.....	Denver
Thompson, Russell, B.S.....	Winterset, Iowa
Walbridge, Clarence Friedrich.....	Durango
Whitney, Caroline Elizabeth.....	Boulder

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SPECIAL STUDENTS

NAME	RESIDENCE
Cahill, Bess.....	Dixon, Illinois
Campbell, Lillian, B.S.....	Grand Junction
Carroll, Ruth E.....	Denver
Franklin, Ida Minta.....	Boulder
Gregory, Greenough	Westminster
Miller, Ruth E.....	Boulder
Osborn, Hobart Turner.....	White House, Kentucky
Schaeffer, Adeline	Boulder

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TRAINING SCHOOL FOR NURSES

THIRD YEAR CLASS

NAME	RESIDENCE
Ford, Ethel.....	Leonardville, Kansas
Houghton, Ruth Vivian.....	Kackley, Kansas
Hurley, Carrie.....	Cass City, Michigan
Johnson, Bertha, A. W.....	York, Nebraska
Pla, Maria A.....	Fajardo, Porto Rico

—5

SECOND YEAR CLASS

NAME	RESIDENCE
Allison, Orpha	Paonia
Baird, Vera.....	Laveen, Arizona
Garvin, Helen	Boulder
Johnson, Verna	Boulder
Rogers, Jane Clare.....	New Waterford, Ohio
Stanton, Helen	Boulder
Thorpe, Ruth	Boulder

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FIRST YEAR CLASS

NAME	RESIDENCE
Brewer, Fay V.....	San Benito, Texas
Conklin, Faye Louise.....	Boulder
Marsh, Nell D.....	Boulder
Olsen, Milleread	Boulder
Seagley, Lucile J.....	Denver

—5

SCHOOL OF LAW

THIRD YEAR CLASS

NAME	RESIDENCE
Beer, Dee Howard.....	Boulder
Chapman, Elbridge Gerry, Jr., A.B.....	Denver
Carroll, James Vincent.....	Boulder
Coonradt, Arthur Vivian.....	Boulder
Douglass, Curran Fletcher.....	Malta Bend, Missouri
Grutter, Walter Luke, A.B.....	Boulder
Hanning, Wallace Totten.....	Denver
Hinkley, Henry Lawrence, A.B.....	Sterling
Hogan, Thomas Patrick.....	Gunnison
Hulburt, Helen Alverda.....	Fruita
Isbill, Albert Sydney, A.B.....	McGregor, Texas
Nichols, Alan.....	Boulder
Shaw, Earle Lionel.....	Denver
Sibbald, Reginald Spalding.....	Boulder
Smith, Feay Burton.....	Boulder
Stone, Clifford H., A.B.....	Gunnison
Stratton, Marjorie Allen.....	Boulder
Thompson, Glenn Stryker, A.B.....	Boulder
Thompson, Harold Clark, A.B.....	Greeley
Warrington, Jesse Gilbert, A.B.....	Salem, Oregon

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SECOND YEAR CLASS

NAME	RESIDENCE
Beverly, James S.....	Sylvan Grove, Kansas
Craven, Edward Bernard.....	Boulder
Eynon, Clarence.....	Durango
Fischer, John C.....	Richmond, Virginia
Fulghum, Carl W.....	Glenwood Springs
Glendinning, Don K.....	Boulder
Grant, Kenneth.....	Leadville
Griffith, John Lindsey.....	Denver
Hanks, Bryan Cayce.....	Wichita Falls, Texas
Hedrick, Roland Leslie.....	Craig
Hiler, Ivan Laurence.....	Glenns Ferry, Idaho
Hoffman, James Robert.....	Littleton
Holmes, Charles Martin.....	DeBeque
Johnson, Perry Norman.....	Pueblo
Kilkenny, Austin Edwin.....	Leadville
Longshore, Willard Breck.....	Bucknum, Wyoming
Mechem, Philip.....	Chicago, Illinois
Moore, John Randle.....	Campbell, Missouri
Naylor, Herbert C.....	Denver
Nicholas, Howard L.....	Boulder
Penney, Benjamin George, A.B.....	Pueblo
Rush, William S.....	Salida
Schaper, Robert Henry.....	Hairlock, Nebraska
Scheidegger, Lloyd Wesley.....	Fort Morgan
Seavy, Vasco Gerald.....	New Raymer
Shobert, Warren Lamont.....	Bloomsburg, Pennsylvania
Tarkoff, Harry.....	Boulder
Toelle, Wallace Walter.....	Bloomington, Indiana
Wagner, John Albert.....	West Bend, Wisconsin
Williams, Harley J.....	Golden
Williams, Lon T.....	Boulder
Wilson, John Donald.....	Albuquerque, New Mexico

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FIRST YEAR CLASS

NAME	RESIDENCE
Apple, Clay Richard, A.B.	Boulder
Devries, Herbert J. S.	Freemont, Nebraska
Eagleton, Emerson M.	Boulder
Elam, Roy J.	Boulder
Feighner, Emmett R.	Montrose
Flynn, Edward James.	Jamaica Plains, Massachusetts
Franklin, Walter B.	Fort Collins
Glover, Olive Earl.	Boulder
Hix, Clifton A.	Denver
Lee, Samuel M.	Fort Morgan
Martinez, Joseph E.	Trinidad
Murphy, J. Russell, A.B.	Denver
Noland, James M.	Denver
Norton, Leonard S.	Arvada
O'Hara, Thomas W.	Wheatland
Reynolds, James Price.	Cokeville, Wyoming
Rosner, David	Boulder
Rush, John Lewis.	Denver
Rutledge, Wiley Blount, Jr.	Boulder
Schluntz, H. Howard.	Joliet, Illinois
Shay, William J.	Boulder
Street, John Ralph.	Boulder
Sullivan, Robert F.	Chicopee Falls, Massachusetts
Van Dervort, Russell G.	Boulder
Weingand, Claude F.	Denver
White, Lowell	Boulder
White, Philip Weaver.	Denver
Wittemyer, John	Boulder

—28

SPECIAL STUDENTS

NAME	RESIDENCE
Alexander, William Acel.	Denver
Burke, Leo A.	Cincinnati, Ohio
Campbell, Ernest R.	Carthage, North Carolina
Foster, Embree	Boulder
Gueno, Harry W.	Crowley, Louisiana
Hall, Hally Heaton.	Fort Collins
Latorra, Dominic A.	Boulder
Lilley, William Kase.	Virginia Dale
Lussier, Albert Joseph.	Boulder
Norpel, Remigius J.	Ouray
O'Day, George William.	Lafayette
Payton, Roy A.	Pueblo
Shikany, Walter J.	Williston, North Dakota

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COLLEGE OF PHARMACY

FOURTH YEAR CLASS

NAME	RESIDENCE
Burgess, Charlotte H., Ph.C.....	Boulder
Jaquiss, Hazel Dell, Ph.C.....	Paonia
O'Brien, Faye Frances, Ph.C.....	Dawson, New Mexico
Swisher, Margaret C., Ph.C.....	Hotchkiss
Wood, Armilda Jane.....	Boulder
—5	

THIRD YEAR CLASS

NAME	RESIDENCE
Armstrong, Elma Lavenia.....	Grand Junction
Bacon, Estel Elaine, Ph.G.....	Rocky Ford
Burns, Jeannette	Littleton
Myers, Helen Georgia, Ph.G.....	Alamosa
Simpson, Helen, Ph.G.....	Fowler
—5	

SECOND YEAR CLASS

NAME	RESIDENCE
Beckett, Adelia Louisa.....	Lafayette
Heaton, Earl Hunt.....	Denver
Houk, William George.....	Ridgway
McCaughan, Ethel.....	El Dorado, Kansas
MacFarlane, Irene L.....	Pueblo
Maier, Leonard R.....	Salida
Norberg, Clarice E.....	New Raymer
Williams, Arthur Justin.....	Flagler
Wilson, Melchior Harry.....	Boulder
Woods, Robert Howard.....	Lamar
Ziegler, R. Kirk.....	Boulder
—11	

FIRST YEAR CLASS

NAME	RESIDENCE
Hayden, Lindell Carol.....	Walsenburg
Haughey, Leon C.....	Craig
Howard, Eugene R.....	Howard
King, Dorothy M.....	Denver
Klemme, Carl Joseph.....	Boulder
Mann, Horace William.....	Buffalo, Wyoming
Perry, Mabel E.....	Norton, Kansas
Schmitt, C. Fredericka, A.B.....	Boulder
Wilson, Henry E.....	Cortez
—9	

SUMMER QUARTER STUDENTS, 1920

COLLEGE OF ARTS AND SCIENCES

* Indicates students previously registered in regular quarters.

NAME	RESIDENCE
Abbott, Sabra Jane, A.B.	Wood River, Nebraska
*Abell, Wendell Edward	Boulder
Abercrombie, Martha F.	Pittsburgh, Pennsylvania
Abling, Rose May	Morenci, Michigan
*Abrahamson, Mary L., A.B.	Boulder
Adams, Agness Louise	Langdon, Kansas
Adams, Clara Viola, A.B.	Sterling, Kansas
Adams, Ella Rachel, A.B.	Sterling, Kansas
*Adams, Jane	Boulder
Adams, Lucile	Paducah, Kentucky
Adams, Ruth Winnifred	French, New Mexico
Adamson, Virginia Mary	Erie, Kansas
Agnew, Gertrude	Fullerton, Nebraska
Agnew, Myrtle Mary	Fullerton, Nebraska
Aldrich, Hazel Irene	Granada
Aldridge, May, B.Pd.	Webb City, Missouri
Allen, Blanche, B.Pd.	Greeley
Allen, Frankie F.	Hawkins, Texas
Allen, Julia Washington, A.B.	Muskogee, Oklahoma
Allen, Lela Belva	Stafford, Kansas
Allen, Marian Lora	Winfield, Kansas
Allen, Monica	Hutchinson, Kansas
Allen, Virginia Pope	Muskogee, Oklahoma
Allison, Mattie May	San Marcos, Texas
Alspaugh, Madge, A.B.	Oklahoma City, Oklahoma
Amick, Edith Ind.	Bristow, Nebraska
Amsler, Lena, A.B.	McGregor, Texas
Anderson, Bertha Carolina, B.S.	Kinsley, Kansas
Anderson, Ella	Pawhuska, Oklahoma
*Anderson, Eugene Newton	Boulder
Anderson, Ludie Adele	Pine Bluff, Arkansas
Anderson, M. Ruth	Boulder
Anderson, Mrs. Mabel, A.B.	Colorado Springs
Anderson, Minnie C.	Alta, Iowa
*Anderson, Newell C.	Denver
Anthony, Gladys	LeLoup, Kansas
Apple, Ruby Alice	Durant, Oklahoma
Archer, Ethel	Hiawatha, Kansas
Arheart, Delta	Delphos, Kansas
Arnold, Ruby	Rozel, Kansas
Ashe, Gladys	Williamsville, Missouri
*Ashley, Schuyler	Boulder
Atkins, Mary	Kansas City, Missouri
Atkinson, Lillian Merle	Crosbyton, Texas
Aubrey, Velma Bernadine	Denison, Texas
Auer, Eugene S.	St. Louis, Missouri
Austin, Nell	Oak Ridge, Louisiana
Bacon, Francis	Frederick, Oklahoma
Bacon, Margaret	Frederick, Oklahoma
Baders, Mildred L.	Loma
Bagwell, I. Curtis, A.B.	Del Rio, Texas
Bailey, Florence	Pratt, Kansas
Bailey, Lillian	Kansas City, Missouri
Bailey, Mabel Claire	Olney, Illinois
Bailey, Vera I.	Kansas City, Missouri

NAME	RESIDENCE
Baily, Betty Blanch.....	Bertrand, Nebraska
Baird, Bernice.....	Gatesville, Texas
Baird, Mary Elizabeth.....	Waynoka, Oklahoma
Baker, Verda Hortense.....	Crosbyton, Texas
Ballou, Audrey.....	Kansas City, Missouri
Ballou, Lillian.....	Sterling City, Texas
Balyeat, Gertrude S.....	Denver
Barcus, Floy C. (Mrs.).....	Chanute, Kansas
Barker, Elizabeth Groat.....	Joplin, Missouri
Barker, Mira Katherine.....	Wilmette, Illinois
Barnard, Bessie.....	Kansas City, Missouri
Barnard, Kate.....	Halstead, Kansas
Barnard, Ruth.....	Wichita Falls, Texas
Barnes, Nita May.....	Portsmouth, Virginia
Barnes, Ruth.....	Marlow, Oklahoma
Barstad, Minerva.....	Linn Grove, Iowa
Barth, Dorothy.....	Broken Arrow, Oklahoma
Bartlett, Ellen M.....	San Francisco, California
*Bartlett, Nona E.....	Denver
Bashore, S. Elizabeth, A.B.....	Pueblo
Bassel, Paul Maiden.....	Belton, Texas
Bateman, Grace M.....	Detroit, Michigan
Bates, Fannie Mason.....	San Angelo, Texas
*Bates, Irene Templeton.....	Basalt
*Bathrick, Frances.....	Cleveland, Ohio
Baum, Maud.....	Boulder
Baumgartner, Miss E. G.....	Wellington, Texas
Baumgartner, Olean.....	Wellington, Texas
Baxter, Blanche.....	Boulder
*Bean, Helen D.....	Boulder
Beane, Anna Lou.....	Bowling Green, Kentucky
Beard, Theodore R.....	Sapulpa, Oklahoma
Beavers, G. Herbert.....	Austin, Texas
*Becker, Elery R.....	Rocky Ford
Becker, Kathryn.....	Kansas City, Missouri
Beckham, Ada R.....	Golden City, Missouri
Beckman, Elsie, A.B., B.S.....	Okmulgee, Oklahoma
Beeson, Annalola.....	Hutchinson, Kansas
Bell, Bessie Bernice.....	Logansport, Indiana
*Bell, John Lawrence.....	Montrose
Bellmon, Winnie.....	Red Rock, Oklahoma
*Belser, Ernestine M.....	Boulder
Bemis, Mary E.....	Omaha, Nebraska
Bench, Stella Louise, A.B.....	Galena, Illinois
Benica, Catherine Elizabeth.....	Logansport, Indiana
*Benson, Amanda Elizabeth.....	Boulder
Berg, Margaret.....	Emporia, Kansas
Berry, Lydia Mitchell, A.B.....	Versailles, Kentucky
Richard, Edna.....	Bellevue, Kentucky
Billig, Mrs. Grace Adele, B.Pd.....	Boulder
Bingham, Bertha E.....	Clinton, Iowa
*Bishop, Frank Dewey.....	Denver
Bittick, Sara.....	Atlanta, Georgia
Blakey, Susan, A.B., B.S.....	Boulder
Blanchard, Mrs. Mary.....	Granite Canon, Wyoming
Blatchley, Teresa G.....	Newton, Kansas
Blomquist, Frances.....	Burlington, Iowa
*Blosser, Iva.....	Boulder
Bolen, Emma Elizabeth.....	St. Joseph, Missouri
Bollman, Clara.....	Boulder
Bolton, Sara Ermine.....	Clinton, Missouri
Bond, Naomi Lucille.....	Tulsa, Oklahoma
Bourg, Miss Tom.....	Houma, Louisiana
*Bowler, Angela.....	Denver
Bowman, Laura.....	Manor, Texas

NAME	RESIDENCE
Bowman, Mabel, A.M.	Danville, Illinois
Bowser, Goldie May, A.B.	Gibsonburg, Ohio
Boyd, Katherine	Oakland, Nebraska
*Boyington, Vera Marie	Denver
*Boyle, Lenore Irene	Walsenburg
Boysen, Esther	Harlan, Iowa
Braam, Maximilian, A.M.	Cincinnati, Ohio
*Brace, Letitia A., A.B.	Boulder
Brackett, Edith	Ismay, Montana
Bradford, Lenore	Boulder
*Bracy, Sarah Margaret, A.B.	Boulder
Brady, Ruth	Richmond, Missouri
Brandt, Clara A.	Postville, Iowa
Breitenstein, Mrs. Ida S., B.Pd.	Boulder
Brelsford, Harold P.	Eastland, Texas
Brenizer, Ethyle K.	Kansas City, Missouri
Brennan, Fannie	St. Joseph, Missouri
Brent, Lena L., B.Pd.	Farmington, Missouri
Brewer, Willie-May	Eureka Springs, Arkansas
*Breyfogle, Eva May	Boulder
Bridges, Helen Frances, A.M.	Kansas City, Missouri
Brittson, Anna Elizabeth	Weatherford, Oklahoma
Brock, Irene	Du Quoin, Illinois
*Bromley, Charles D.	Boulder
Brooksbank, Maud	Springfield, Missouri
Brott, Albert T.	Aspen
Broun, Collins Willard	Bremond, Texas
Brown, Bernice F.	Holton, Kansas
Brown, Helen	Fayette, Missouri
Brown, Joyce Adine, A.B.	Olathe, Kansas
Brown, Julia	New Market, Indiana
Brown, Nora	Stuttgart, Arkansas
Brown, Ruth	Greenville, Texas
Brown, Virginia	Augusta, Kansas
Browne, Margaret Sara	Burdett, Kansas
Bruce, Mary Ellen	Oklahoma City, Oklahoma
Bruce, Nelle May	Oklahoma City, Oklahoma
Brumback, Florence M., A.B., M.S.	Colorado Springs
*Brunner, Clare U.	Boulder
Bryan, W. Leigh	Sidan, Kansas
Buckert, Louise E., B.Pd.	Greeley
Buchheim, Lillian A., B.S.	Leonardville, Kansas
*Buchheim, Walter A., B.S.	Leonardville, Kansas
Buckner, Cora Mae	Moody, Texas
Buckner, Mrs. Otilie T.	Tucson, Arizona
Buecker, Anna Mary	Pueblo
Bugg, Eleanor	Gainesville, Texas
Bugg, Lucile	Gainesville, Texas
Burchard, Anna L.	Kansas City, Missouri
*Burke, Robert E., A.B.	Boulder
Burket, Lulu G.	Beatrice, Nebraska
Burrus, Ruth	Kansas City, Missouri
Burton, Una, A.B.	Chickasha, Oklahoma
Bush, Llyod Wesley	Nebo, Illinois
Butcher, Estelle, A.B.	Denver
Butler, Estelle May	Macon, Missouri
Butler, Iva Zenella	Macon, Missouri
Butler, James O.	Mulberry, Kansas
*Butterfield, Olin Jack	Denver
*Button, Doris	Denver
Byerley, Blanche Edith	Humboldt, Kansas
Byerley, Jacob Roy	St. Joseph, Illinois
Byrnes, Frances Maria	Fullerton, Nebraska
Cable, Mrs. Marcia	Burlington, Iowa
Cain, Ethel Mae	Liberal, Kansas

NAME	RESIDENCE
Cain, Mrs. Roy.....	Kosse, Texas
Cain, William Augustus.....	McLean, Texas
Calhoun, Clara.....	Austin, Texas
Callaway, Elizabeth, A.B.....	St. Louis, Missouri
Calvert, Hazel.....	Gower, Missouri
Camp, Vesta L., A.B.....	Te Kamah, Nebraska
*Campbell, Mrs. Hortense.....	Boulder
*Campbell, Pearl.....	Loveland
Cannon, Bereneice.....	Kansas City, Missouri
Capron, Albert M.....	Gering, Nebraska
Carder, Mrs. Alta Loomis, A.B.....	Cordell, Oklahoma
Carnal, Reuben Hilary.....	New Orleans, Louisiana
Carpenter, Katherine.....	Lenexa, Kansas
Carpenter, Martha V., B.S.....	Starkville, Mississippi
Carpenter, Maude, A.B.....	Starkville, Mississippi
*Carroll, James Vincent.....	Iowa City, Iowa
Carroll, Ruth C.....	Denver
Carter, Goldie.....	Russell, Kansas
Carter, Lillian G., A.M.....	Vincennes, Indiana
Carter, Sara.....	Russell, Kansas
Cartwright, Priscilla.....	Memphis, Tennessee
Casey, John Bunyan, A.B.....	Greenville, Texas
Cassell, Mabel.....	Houston, Texas
Casserly, William R.....	Lincoln, Kansas
Cassidy, Blanche.....	Kansas City, Missouri
Castle, Lucius M., A.M.....	Alton, Illinois
Catron, Agnes.....	Tilden, Nebraska
Cauble, Helen P., A.B.....	Jonesboro, Arkansas
Campion, Elizabeth.....	Evanston, Illinois
*Chang, Doo.....	Shanghai, China
Chapin, Dean William.....	Belleville, Kansas
Chapman, Ruth H.....	Waxahachie, Texas
Chase, Besse L.....	Shenandoah, Iowa
Chiek, Myra.....	Hastings, Nebraska
*Chiesa, Mark V.....	Boulder
Childers, Crete.....	Boulder
Chrisman, Nellie F.....	Kansas City, Missouri
*Cinnamon, Elsie.....	Boulder
Claassen, Anna E.....	Beatrice, Nebraska
Claassen, Margaret M.....	Beatrice, Nebraska
Clampitt, Mary M.....	Jacksonville, Illinois
Clampitt, Mary Bettye.....	West, Texas
Clark, Agnes Jane.....	Junction City, Kansas
Clark, Bertha B.....	Carthage, Missouri
Clark, Ina.....	Louviers
Clark, Lillian.....	Holton, Kansas
Clark, Lorene.....	Louviers
*Clarke, Francis P., A.B.....	Denver
Clarke, Iza Marion.....	Harrisonville, Missouri
Clema, Mary Helen.....	Frankfort, Kansas
Clements, Ina L.....	Havensville, Kansas
Clemons, Beulah M.....	Marshall, Oklahoma
Clevenger, Mattie.....	Excelsior Springs, Missouri
Clinton, Ora Belle.....	Clay, Louisiana
Clyde, Mary Rose.....	De Soto, Missouri
*Coakley, Harry E.....	Denver
Coates, Margie.....	Waxahachie, Texas
Cochran, Evalena.....	Cordell, Oklahoma
Cochran, Mary.....	Paris, Arkansas
Cochran, Nelle.....	Paris, Arkansas
Coffman, Ida F.....	Liberty, Missouri
Cogan, Mary E.....	Kansas City, Missouri
Cogswell, Beulah.....	Hillsboro, Texas
Cohn, Sara Ruth.....	Boulder
Cole, Stella M., A.B.....	Kansas City, Missouri

NAME	RESIDENCE
*Collins, Lucile Esther.....	Boulder
Collins, Vida L., A.B.....	Bear Lake, Michigan
Combs, Myrtle June.....	Jefferson, Oklahoma
Compton, Gladys C.....	Rozel, Kansas
Compton, Laura Alma.....	Rozel, Kansas
Conn, Josephine.....	Beatrice, Nebraska
Conway, Effie.....	Norton, Kansas
Conway, Gladys.....	Norton, Kansas
Cook, Mrs. Grace Griffin.....	Independence, Missouri
Coombs, Alice Lillian.....	Boulder
Copeland, Mrs. Franc N.....	Boulder
Copps, Phebe Stoddard.....	Boulder
Corder, Charlotte F., A.M.....	Santa Monica, California
*Cordes, Howard F.....	Boulder
Cornelius, Mrs. Nellie V.....	Van Buren, Arkansas
Corners, Grace Geneva.....	Auburn, Nebraska
Cory, Eunice Ozelle.....	Tulsa, Oklahoma
Cotter, C. Letitia.....	Kansas City, Missouri
Cowling, Anna.....	Leavenworth, Kansas
Cowling, Mary Louise.....	Leavenworth, Kansas
*Cox, William E.....	Howard, Kansas
Craddock, Lutie, B.S.....	Denton, Texas
Crawford, Frank Bostwick.....	Austin, Texas
Crawford, Hattie.....	Welch, Oklahoma
Creekmore, Georgie M.....	Norfolk, Virginia
Crews, Evalena, B.S.....	Fayette, Missouri
Crockett, Fannie Ellen.....	Austin, Texas
Crosby, Gertrude.....	Tilden, Nebraska
*Crouch, Marjorie Schoppe, A.B.....	Fort Morgan
Crowder, Eleanor Hyatt.....	Hominy, Oklahoma
Crutcher, Martha C. Polk.....	Scott City, Kansas
Cunningham, Fenner N., A.B.....	Indianola, Iowa
Curl, Ina.....	Tolar, Texas
*Curtis, Gwendolyn.....	Castle Rock
Cusic, May.....	Boulder
Dady, Monna R.....	Broken Bow, Nebraska
*Daily, Ruth.....	Beloit, Kansas
Dalton, Nelle.....	Gilliam, Missouri
Daniel, Mattie.....	Grandview, Texas
*Danielson, Ardis.....	Boulder
Darby, Bessie Margaret, B.S.....	Quincy, Illinois
Davidson, Evelyn.....	San Marcos, Texas
Davidson, Leona.....	Williamsville, Missouri
Davidson, Willa Roberta.....	Williamsville, Missouri
Davis, Etta L.....	Fort Worth, Texas
Davis, Leta.....	Ruston, Louisiana
Davis, Lillian Castelline.....	Tulsa, Oklahoma
Davis, Mae Mildred.....	Pawnee City, Nebraska
Davis, Olive Anne.....	Gibson, Tennessee
Davis, Ruth, A.B.....	Fullerton, Nebraska
Day, Mamie.....	Magnolia, Mississippi
Dean, Marguerite, A.B.....	Boulder
DeCelle, Anne, B.L.....	Hazlehurst, Mississippi
DeChaumes, Helen C.....	Houston, Texas
DeChaumes, Hortense A.....	Houston, Texas
Deen, Vera.....	Paris, Arkansas
DeMaine, Maude C., B.S.....	Boulder
Demasters, Effie.....	Richmond, Missouri
*Denham, Leenel G.....	Boulder
Dennison, Mrs. Emma.....	Grand Rapids, Michigan
de Rossi, Maddalena, A.B.....	Troy, New York
Devine, Mrs. Harriet S., Ph.B.....	New York City
Devine, Ruth.....	New York City
Dewhirst, Nellie Blanche.....	Hutchinson, Kansas
Deyo, Mildred.....	Augusta, Kansas

NAME	RESIDENCE
Dickinson, Bessie L.	Port Arthur, Texas
Dickson, Elizabeth	Buffalo, New York
Dillman, Ona B.	Partridge, Kansas
Diltz, Ronald	Kansas City, Kansas
Dings, William	Longs Peak
Dodds, Edith	Burlington, Iowa
*Dole, Mary Ellen	Boulder
Dolecek, Blanche	Ellsworth, Kansas
Dolman, Helen, A.B.	Ardmore, Oklahoma
Donelson, Kate	Memphis, Tennessee
Donnell, Kenneth B.	Sterling, Kansas
Donovan, Theresa	Kansas City, Missouri
Dorsey, A. Archie, A.B.	Bradshaw, Nebraska
Dorsey, James H.	Hebron, Nebraska
Dorth, Wilma	Wichita, Kansas
Doty, Florence	Grand Rapids, Michigan
Douglas, Alice, A.B.	Tyler, Texas
Dowdle, Fatine	Graham, Texas
*Doyle, Frances	Denver
Doyle, Gladys D.	Boulder
Drake, Loice Marie	Boulder
Draper, Elfrieda, A.B.	Lawrence, Kansas
Driver, Bird M.	Belle Fourche, South Dakota
Drothleff, Ann	Boulder
Drysdale, Kate B.	Lexington, Missouri
Duckett, Mae Lora	Glenwood, Iowa
Dudgeon, Mary	New Salem, Kansas
*Duffy, James Donald	Denver
*Duggan, Helen G.	Denver
*Dugger, Eva E.	Denver
Dunbar, Miriam, B.S.	South Bend, Indiana
Duncan, Elizabeth Lucile	Columbia, Missouri
Dunlap, Nannie H.	Beaumont, Texas
Dunn, Esther Mae	Glenwood, Iowa
Durney, M. Josephine	Buffalo, New York
Dyer, Seely Josephine, M.Pd.	Boulder
Earle, Clara, A.B.	Clarksville, Arkansas
Easley, Onie Beatrice	Greenville, Texas
Eastland, Isabel, Ph.B.	Oklahoma City, Oklahoma
*Ebert, Alice Ladd, A.B.	Boulder
*Ebert, Gladys	Boulder
*Eckels, Margaret	Boulder
Edmiston, Evaline	Towanda, Kansas
Edmondson, Bettye Kate	Waxahachie, Texas
Edwards, C. James	Boulder
Edwards, Etta King	Columbus, Mississippi
Edwards, Jennie, B.S.	Kansas City, Missouri
Edwards, Lena Lee, A.B.	Osage, Texas
Edwards, Mary E.	Abilene, Kansas
Eggleston, Lela D.	Kansas City, Kansas
Eggleston, Meda F.	Burlington, Iowa
Eiffert, Esther Helen	Monona, Iowa
Eldridge, Emma L.	Wichita, Kansas
Ellenberger, Rush W., A.M.	Beverly, Kansas
*Ellett, Alexander	Boulder
Ellis, M. Bea	Jacksonville, Illinois
Ellis, Nancy Lee	Bertram, Texas
Emberton, O. D.	Aguilar
Emerson, Ethel	Joplin, Missouri
Enbank, Mayme	Denver
Enderle, B. Lester	Fredericksburg, Texas
England, Marjorie Alice	Olney, Illinois
Engstrand, Agnes, A.B.	Leonardville, Kansas
Ericson, Louise Marion	Galesburg, Illinois
Estabrook, May	Logansport, Indiana

NAME	RESIDENCE
Evans, Vera I.....	Kansas City, Kansas
Ewart, Grace A.....	Wray
Ewart, Irving Dodder.....	New York City
Ewing, E. Ruth, B.S.....	Kansas City, Kansas
*Fahnestock, Sarah.....	Boulder
Faidley, Jennie, B.S.....	Broughton, Kansas
Fair, Bessie S., A.M.....	Trenton, Missouri
Falk, Esther.....	Marlow, Oklahoma
Fallers, Clara Luella.....	Shenandoah, Iowa
Fankhauser, Neva Vaughn.....	Haviland, Kansas
Farmer, Effie Mae.....	Liberal, Kansas
Farmer, Gertrude.....	Liberal, Kansas
Faulkner, Eula.....	Webb City, Missouri
Faulkner, Vera.....	Webb City, Missouri
Fawcett, Lyda.....	Logansport, Indiana
Feather, Mildred Helen.....	Liberal, Kansas
Ferguson, Grace L.....	Grand Island, Nebraska
Field, Margaret.....	Burlington, Iowa
Findlay, Elizabeth.....	Oklahoma City, Oklahoma
Finley, Grace E.....	Douglas, Arizona
Finley, Laura J., B.S.....	Pittsburg, Kansas
Fisch, Pearl.....	Dewey, Oklahoma
Fisk, Mattie M.....	Haviland, Kansas
Fitch, Olive R.....	De Soto, Missouri
Fleming, Frances C.....	Chicago, Illinois
Fletcher, Lucy.....	Salina, Kansas
Flinn, Heber Howard.....	Little Rock, Arkansas
Flowers, Mrs. Bennie D.....	Brookhaven, Mississippi
Fluker, Florence N.....	Emporia, Kansas
Fly, Eloise.....	San Antonio, Texas
Ford, Ola.....	Conway, Arkansas
*Forsman, Hulda.....	Pueblo
Fort, Gaston Wilder.....	Raleigh, North Carolina
Foster, Elsie May.....	Berlin Heights, Ohio
Foster, Mrs. Harriette E., B.Pd.....	Wichita, Kansas
Foster, Katherine G.....	Kansas City, Missouri
Foth, Anna S.....	Hillsboro, Kansas
Fowler, Dennis C., A.B.....	Tyler, Texas
Fowler, Eula W.....	Colorado, Texas
Fox, Winifred M.....	Ingram, Pennsylvania
Fraker, Helen Josephine.....	Fort Collins
Francis, Alta.....	Holton, Kansas
Frandsen, Elleonora, B.S.....	Freemont, Nebraska
Franklin, Ida Minta.....	Dallas, Texas
Franz, Ella.....	Rozel, Kansas
Fraser, Carrie Louisa.....	Grand Island, Nebraska
*Fredericks, Gladys.....	Nucla
Freeman, Hazel M.....	Ellsworth, Kansas
French, Susie Marie.....	Pratt, Kansas
Frickel, Henry B.....	Campbell, Nebraska
Fuchner, Wilda.....	Oklahoma City, Oklahoma
Fultz, Edna.....	Salem, Indiana
Fung, Yu-lan, A.B.....	Golden
Funk, Marian N.....	Chicago, Illinois
Fussell, Elizabeth.....	Ozona, Texas
*Gahagen, Agnes.....	Denver
Garard, Pauline, B.S.....	Nashville, Tennessee
Garmon, Caddo Mariee, A.B.....	Lamesa, Texas
Garver, Clara L.....	Pittsburgh, Pennsylvania
Gatewood, Alice L.....	Kansas City, Missouri
Gatewood, Minnie B.....	Kansas City, Missouri
Gatewood, Olivia M.....	Kansas City, Missouri
Gehrung, Emma Gertrude, B.Pd.....	Boulder
Gehrung, Mary M.....	Boulder
Gelpi, Fernand J., Jr.....	New Orleans, Louisiana

NAME	RESIDENCE
*Geltz, Helen W.	Boulder
Gerkin, Margaret Elnora	Mulberry Grove, Illinois
Gerlach, Dorothy	Canadian, Texas
*Gertsen, Elizabeth	Boulder
Gibbs, Edna L.	Portsmouth, Virginia
Gibbs, Lita	Keatchie, Louisiana
Gibson, Anna L.	St. Louis, Missouri
Gibson, Ettie	Durant, Oklahoma
Gibson, Theresa, A.B.	Muskogee, Oklahoma
Gideon, Orpha	Scranton, Arkansas
Gilchrist, Edith M.	Indianapolis, Indiana
Gilday, Anna C.	Kansas City, Missouri
Gilday, Mary A.	Kansas City, Missouri
Gill, Gertrude	Surprise, Nebraska
Gilliam, Nollie	Fort Worth, Texas
Ginn, Mary L., A.B.	Fortesque, Missouri
Gipson, Nelle B.	Crawfordsville, Indiana
*Girard, Grant B.	Boulder
Glass, Kathryn	Ozona, Texas
Glick, Perry A.	Hamilton, Missouri
Goble, Robert H.	Dallas, Texas
Goebel, Anna M.	Jetmore, Kansas
Golden, Lulu M.	St. Joseph, Missouri
Gooch, Fay	O'Donnell, Texas
Gordon, Marguerite	Sand Springs, Oklahoma
Gottlieb, Blanche	Kansas City, Missouri
Gould, Jane	Belvidere, Illinois
Graham, Elizabeth, A.B.	Blackfoot, Idaho
Graham, Isabelle	Omaha, Nebraska
Graham, Mina	Bryan, Texas
*Graham, Sarah M.	Oberlin, Ohio
Grant, Bessie M.	Belcherville, Texas
Grass, Alma Esther, A.B.	LaCrosse, Kansas
Grauerholz, Elizabeth	Kensington, Kansas
Graves, Hazel Mae	Spencer, Nebraska
Graves, Parlon L.	Franklin, Nebraska
Grebner, Clara	Fort Morgan
Green, Halcott P., Jr., B.S.	Columbia, South Carolina
Greer, Edith Grizella	Marion, Kansas
Greer, Esther Wheeler	Marion, Kansas
Griffin, Evelyn, A.B.	Denver
Griffin, Mary Edwards	Kansas City, Missouri
Griffin, Willa	Independence, Missouri
Griffith, Florence	Kansas City, Missouri
Griffith, Kean	Cory
*Griggs, Earl Leslie	Croton-on-Hudson, New York
Grimes, Grace F.	Chicago, Illinois
Guinn, (Mrs.) Emma Jeanette Vivian	Fort Worth, Texas
Guy, Eleanor Selena	Wakefield, Kansas
Hackman, Edna	Burlington, Iowa
Hadley, Edna Margaret, A.B.	Colorado Springs
Hadley, Jennie M., B.Pd.	Colorado Springs
*Haener, Esther V.	Boulder
Hagamon, Ruth	Ranger, Texas
Hahn, Rae	Washington, D. C.
*Haines, Gladys	Boulder
Hale, Dorothy, A.B.	Cheyenne, Wyoming
Hale, Marie	Lexington, Missouri
*Hall, Ellis A.	Boulder
Hall, Hally-Heaton	Fort Collins
Hamel, Cecelia	Evanston, Illinois
Hamil, Mrs. Florence	Jenks, Oklahoma
Hamilton, India Pearle, A.B.	Greenville, Texas
Hamilton, Laurence E., Jr.	Dallas, Texas
Hamiter, Carrie	Minden, Louisiana

NAME	RESIDENCE
Hammond, Zey, A.B.	Marietta, Ohio
Hamner, Ouina Ruth	Beaumont, Texas
Hampton, Nannie	Kennett, Missouri
Hand, Effie M., B.S.	Clay Center, Kansas
Hanna, Ada Freeland	Oklahoma City, Oklahoma
Hanson, Margaret	Hudson
Hanson, Martha Louise	Upland, Nebraska
Hardman, Mary Alma, B.S.	South Bend Indiana
Hargett, Clara Belle	Fort Worth, Texas
Harman, Mrs. Myrta	Fort Dodge, Iowa
Harper, Grace Pearl	Frankfort, Kansas
Harper, Laura B.	Frankfort, Kansas
Harper, Mary L.	Frankfort, Kansas
Harper, Maude, A.B.	Ruston, Louisiana
Harrell, Inez, A.B.	Grandview, Texas
Harrell, Laura	Grandview, Texas
Harrington, Helen P.	O'Neill, Nebraska
Harvison, Edith	Boulder
Haskew, Olive	Monticello, Arkansas
Hassell, J. Frankie	San Angelo, Texas
Hattenhauer, Roberta	Council Bluffs, Iowa
*Hauck, Evangeline, A.B.	Rocky Ford
Haverstack, Iris, A.M.	Massillon, Ohio
Hawley, Robert H.	Newton, Kansas
*Hayden, Esther B.	Denver
Haynes, Mattie	Cleburn, Texas
Hays, Anna Leola	Bienville, Louisiana
Hays, Eva Pawnee	Bienville, Louisiana
Hays, Leah Marie	Mt. Pleasant, Texas
Hays, Mabel	Scranton, Arkansas
Haywood, Dorothy	Kansas City, Missouri
Headley, Theresa D., B.Pd.	Chicago, Illinois
*Hedrick, Roland Leslie	Craig
Helbig, Emily Mai	St. Louis, Missouri
Heleker, Helen Hope	Frankfort, Kansas
*Helsstern, Edna	Pueblo
Hemkens, Beatrix, A.B.	Waco, Texas
Hendrickson, Berenice	Mankato, Kansas
Hendrickson, Lenora	Mankato, Kansas
Henry, Carrie L.	Independence, Missouri
Henry, Hazel	Hastings, Michigan
Henry, Lucille	Dubach, Louisiana
Hering, Olive Hazel	Stafford, Kansas
*Herzer, Minnie	Boulder
*Hester, Evelyn Obera	Boulder
*Hewlett, Fred A.	Erie
Hickerson, Emilie, A.B.	Moberly, Missouri
Hickman, Mary	Kansas City, Missouri
Hicks, Elsie	Niagara, Kansas
Higgins, Helen	Alta, Iowa
Highland, Esther	McCune, Kansas
Hildebrand, Joy, B.S.	Smith Center, Kansas
Hill, Pinkie	Little Rock, Arkansas
Hines, Katharine	Kansas City, Missouri
Hinshaw, Theron	Winfield, Kansas
Hinshilwood, Ellen	Fullerton, Nebraska
*Hix, Clifton A.	Rocky Ford
Hobbs, Elaine	Burlington, Iowa
Hocking, Mina, Ph.B.	Boulder
Hodson, Loyd	Wichita, Kansas
Hoelscher, Mrs. Geneva A., A.M.	Boulder
Hoffman, Dora E.	Kansas City, Missouri
Hogan, Nell Laura	Humboldt, Kansas
Holeman, Gladys Evelyn	Ausley, Nebraska
Holland, Susie, Ph.B.	Suffolk, Virginia

NAME

RESIDENCE

Hollander, Ethel H.	Denver
Hollinger, Georgie Anna, B.L.	Kansas City, Missouri
Hollingshead, Amy	Goodland, Kansas
Holman, Zella	Gainesville, Texas
Holmes, Robert E., A.B.	Rochester, New York
Holmes, Stella R.	Omaha, Nebraska
Holt, Mrs. Leona Cusabaugh, A.M.	Greenville, Texas
Hook, Verla R.	Norborne, Missouri
Hooper, Flora	Timpson, Texas
Hoover, Bess	Big Springs, Nebraska
Hoover, Maurine, A.B.	Oklahoma City, Oklahoma
Hoover, Vincent Kelvin	Russell, Kansas
Hopkins, Lois	Ft. Smith, Arkansas
Hopper, Davis M.	Vernon, Texas
Hopper, Mrs. Lena May	Vernon, Texas
Hopson, H. H., Jr.	Clarksdale, Mississippi
Hopson, Richard Nelson	Clarksdale, Mississippi
Horrall, Helen T.	Vincennes, Indiana
Houser, Minnie M.	Grand Island, Nebraska
Houston, Mrs. Blanche C.	Boulder
Houston, Margaret Allen, Ph.B.	Grove City, Pennsylvania
Howard, Zura Dete	Crosbyton, Texas
*Howarth, Erwin M.	Greeley
Howe, Doris	Bethany, Missouri
Howell, Helen Harper	Mexico, Missouri
*Hubbard, Helen E.	Boulder
Hueneke, Charles Albert	Cincinnati, Ohio
*Hufsmith, Ava Amalie	Casper, Wyoming
*Hughes, Sarah Ellen	Boulder
Hulett, Vertie	Excelsior Springs, Missouri
Hull, Ilah	Osceola, Nebraska
Hulsey, S. H.	Ludonia, Texas
Humfeld, Dorothea	Wichita, Kansas
Humlicek, Vlasta	Clarkson, Nebraska
Humphrey, Flora B.	San Angelo, Texas
*Hunley, Dorothy Jane	Boulder
Hunt, Anne	La Grange, Tennessee
Hunt, Frederick L., A.M.	Culver, Indiana
*Hunter, W. F., A.B.	Boulder
*Huntington, Ruth	Denver
Hurff, Irma H.	Suffolk, Virginia
Hussey, Anna Elizabeth	Kansas City, Missouri
Huston, Nettie A.	Winfield, Kansas
Hutcherson, Mary Jane	Clinton, Missouri
Hutchinson, Elizabeth, A.B.	Des Moines, Iowa
*Ingalls, Martha	Hygiene
Innes, Lena, B.S.	Thermopolis, Wyoming
Irving, Della	Kansas City, Kansas
Irving, Hallie M.	Kansas City, Kansas
Irwin, Anna, B.Pd.	Bronaugh, Missouri
Irwin, Herbert S.	Denver
Isely, M. Alice	Wichita, Kansas
Jacka, Charles H.	Lakeside, Ohio
Jackson, E. Barbee	Sweet Springs, Missouri
Jackson, Flora Bell	Logansport, Indiana
Jackson, Lee Etta	Hope, Arkansas
Jackson, Mary L.	Kansas City, Missouri
Jacobs, Bessie H.	Kansas City, Missouri
Jaeger, Martha Louise	Moberly, Missouri
Jarrett, Ruth Angeline	Springfield, Missouri
Jenkins, Celia	Amarillo, Texas
Jenkins, Gilbert Daniel	Maysville, Oklahoma
Jennings, Mary	Healdton, Oklahoma
Jewell, R. LeRoy	Bartlesville, Oklahoma
Johnson, Bessie Irene	Orleans, Nebraska

NAME	RESIDENCE
Johnson, Byrde.....	McAlester, Oklahoma
Johnson, Cecil C.....	Snyder, Texas
Johnson, Edna R.....	Anaconda, Montana
Johnson, Mrs. Effie.....	Spur, Texas
Johnson, Elmer Harrison, B.S.....	Acequia, Idaho
Johnson, Ethel.....	San Benito, Texas
*Johnson, Faith, B.S.....	Denver
*Johnson, Frederick William.....	Brooklet, Georgia
Johnson, Mrs. Gladys B.....	Snyder, Texas
Johnson, Ledra Luree, A.B.....	Boulder
Johnson, Marie Louise.....	Ft. Smith, Arkansas
*Johnson, Routh A.....	Mangum, Oklahoma
Johnson, Miss Tom.....	Mangum, Oklahoma
Johnston, Claudia Lavona.....	Crosbyton, Texas
Johnston, Florence Eugenia.....	Chicago, Illinois
*Johnston, Mary Ruth, A.B.....	Idaho Springs
Jones, Alta M.....	Alamosa
Jones, Arzora.....	Hamilton, Texas
Jones, Belva.....	Gainesville, Texas
Jones, Daisy Mildred.....	Vernon, Texas
Jones, Duane D.....	Denver
Jones, Edith Marian.....	Boulder
Jones, Eva Mae.....	Waco, Texas
Jones, John Lewis, B.S.....	Monroe, Utah
Jones, Lillian B.....	Ft. Worth, Texas
Jones, Mabel B.....	Farragut, Iowa
Jones, May L.....	Evanston, Illinois
*Jones, Natalie.....	Austin, Texas
Jones, Ruby A., A.B.....	Greencastle, Indiana
*Jones, Vera Heinly.....	Boulder
Jones, Virginia.....	Kansas City, Missouri
*Jones, William M.....	Boulder
Jordan, Hazel A.....	Grand Junction
*†Joyce, George Raymond.....	Boulder
Kalbfleisch, Ada C.....	Harlan, Kansas
Karnes, Edna Mayfield.....	Overbrook, Kansas
Kauffman, Inez M.....	Princeton, Missouri
Kaufman, N. Elizabeth.....	Colorado Springs
Keebler, Emaline M.....	Pittsburgh, Pennsylvania
Keenan, Christine.....	Gage, Oklahoma
Keith, Virginia.....	Vandalia, Missouri
Keleher, Julia Mary.....	Albuquerque, New Mexico
Kellis, Vera, B.L.....	Sterling City, Texas
Kendall, Corinne.....	Ruston, Louisiana
*Kendall, Florence, A.B.....	Boulder
Kent, Mattie, A.M.....	Hutchinson, Kansas
Kerr, Elizabeth Catherine Nunley.....	Granbury, Texas
Keyes, Russell T.....	Jefferson City, Missouri
Kidd, Gladys.....	Ruston, Louisiana
Kiehle, Shirley.....	Waukegon, Illinois
Kilfoyle, Mary Theresa.....	St. Joseph, Missouri
*Killgore, Anthony J.....	Denver
King, Gorman B., A.B.....	Clarksville, Arkansas
King, Mrs. B. W.....	Graham, Texas
*Kingery, Mrs. Jessie Roberson.....	Boulder
Kingsbaker, Rae, B.S.....	Kansas City, Missouri
Kinkaid, Mrs. Margaret Hunter.....	Houston, Texas
Kirk, Glory Ann.....	Kansas City, Missouri
*Kirk, William C.....	Long Beach, California
Kirkman, Lola.....	Thorndale, Texas
Kirkman, Maude.....	Paden, Oklahoma
Kirkman, Ruth.....	San Gabriel, Texas
Klemme, Virginia, A.B.....	Boulder
Klippel, Alice, A.B.....	Britt, Iowa

† Died September 6, 1920.

NAME	RESIDENCE
Knappenberger, Viva.....	Sapulpa, Oklahoma
*Kneale, William C.....	Boulder
*Kochevar, Matt J.....	Crested Butte
Kolmesh, Ann Janes, A.B.....	Detroit, Michigan
Kramer, Clara Lydia.....	Herman, Nebraska
Kuhn, Eulalia.....	Marion, Kansas
Kuhn, Retta.....	Marion, Kansas
Ladley, Stella S.....	Pittsburgh, Pennsylvania
Lafferty, Mary Pearl.....	Ellsworth, Kansas
Lagemann, A. F., B.S.....	Indianapolis, Indiana
Lake, Robert Hart.....	Greenville, Mississippi
Lamme, Sarah, A.B.....	Brookfield, Missouri
Landon, Alice.....	Buffalo, New York
*Langley, Luverne.....	Denver
Lankford, Mrs. J. C., B.S.....	Plattsburg, Missouri
Lansdown, Clara T.....	Centertown, Missouri
*Larsen, Clarence C.....	Boulder
Lasley, Etha.....	Olathe, Kansas
Lawrence, Ruby Kate, A.B.....	Dallas, Texas
Lawson, Catherine.....	Wagoner, Oklahoma
Leap, Olga.....	Kinsley, Kansas
Learned, Anna Margaretha, A.M.....	Stafford, Kansas
LeBlanc, Lucie, A.B.....	Beaumont, Texas
Leck, Bertha, A.B.....	Detroit, Michigan
Lee, Ada Foster.....	Chillicothe, Missouri
Leedom, Mary J.....	Conover, Ohio
*LeFevre, Harry W., Jr.....	Denver
Lehman, Edythe.....	Kansas City, Missouri
Lemler, Lillian Marie.....	Girard, Kansas
Lemley, Lilly A.....	Kansas City, Missouri
Leon, Irma Catherine, A.B.....	Kansas City, Missouri
Leonard, Frances.....	Lamar
*Lester, Katherine.....	Boulder
Lewelling, Mary.....	St. John, Kansas
Lewis, Edna Lochloe.....	Muskogee, Oklahoma
Lewis, Jessie.....	Beaver City, Nebraska
Lewis, Vera F.....	Fort Worth, Texas
*L'Hereux, Pearl Astella, A.B.....	Nickerson, Kansas
Ligon, Loleat, A.B.....	Kingsland, Texas
Limb, John R.....	Girard, Kansas
Lindsay, Ellen Guy.....	Richmond, Virginia
Linehan, Marie Elizabeth.....	Boulder
Link, Harry H., B.Pd.....	Minidoka, Idaho
Linscheid, Alfred G.....	Arlington, Kansas
Linscheid, John Edward, A.B.....	Arlington, Kansas
Lipe, Lola.....	Claremore, Oklahoma
Lipscomb, Anna.....	Beaumont, Texas
Lipscomb, Julia Elizabeth.....	Temple, Texas
Livermore, Richard Moses.....	Colorado Springs
*Livingston, Mary.....	Boulder
Llewellyn, Myrtle.....	Conway, Arkansas
Locke, Louie Davis.....	Portsmouth, Virginia
Loesch, Mary.....	Pittsburgh, Pennsylvania
Lofgran, Mabel T.....	Kansas City, Missouri
Long, Ruth E.....	Woodward, Oklahoma
Long, Stella.....	Pittsburgh, Pennsylvania
Lookabaugh, Linnie.....	Watonga, Oklahoma
Loomis, Flora Viola.....	Bethany, Nebraska
Loomis, Helen.....	Laporte, Indiana
*Lorber, Milton B.....	Denver
Loveall, H. Eleanor, A.B.....	Kansas City, Missouri
Lovett, Alice.....	Atlanta, Georgia
Lowe, Grace J.....	Tulsa, Oklahoma
Lower, Helen Hildred.....	Arvada
Lowry, Willis Edwards.....	Laredo, Texas
Lucas, Mrs. Eunice.....	Grapevine, Texas

NAME	RESIDENCE
Lucy, Mary Kathleen, A.B.	St. Louis, Missouri
Luethje, Alvina	Santa Fe, New Mexico
Lusky, Alma Elise, Ph.B.	Detroit, Michigan
Lyon, Nannie E.	Cowgill, Missouri
Lyon, Willard H.	Cowgill, Missouri
*Lyons, Mary	Durango
McAlister, Elizabeth	Pittsburgh, Pennsylvania
McAllister, Mary Elizabeth	Holton, Kansas
McBride, Lucinda, B.S.	Denver
McBurney, Walter J.	Boulder
McCaffree, Helen M.	Radium, Kansas
McCaffree, Myra	Radium, Kansas
McCaffree, William Paul	Radium, Kansas
McCall, Elizabeth M., B.S.	WaKeeney, Kansas
McCandless, Orville C.	Wichita, Kansas
McCarter, Mrs. Mary E.	Boulder
McCartney, Anna	Boulder
McClain, Elizabeth Hunt	Memphis, Tennessee
McClain, Mildred Jackson	Memphis, Tennessee
McClary, Martha	Houston, Texas
McCollum, Annie Laurie, A.B.	Waco, Texas
McConaughay, Leeta	Larned, Kansas
McConnell, Ada	Boulder
McCreary, Eula Marie, A.B.	Carthage, Illinois
McCreary, Hilda	Carthage, Illinois
McDaniel, Bess	Kansas City, Missouri
McDaniel, John Riley, Jr.	Pontoloc, Mississippi
*McDowell, E. W.	Denver
McGill, Paul R.	St. Joseph, Missouri
McGill, Ruby	Colorado, Texas
McGinnis, Frances E.	Chicago, Illinois
McIntosh, Louisa, B.S.	Lost Springs, Kansas
*McKay, Elizabeth	Boulder
McKee, Dora	Macon, Missouri
McKeever, Mrs. M. S.	Tulsa, Oklahoma
McKibben, Helen	Pawhuska, Oklahoma
McKinney, Myrtle	Waco, Texas
McKnight, Anne	Temple, Texas
McKnight, Roberta	Temple, Texas
*McLean, Beryl, B.Pd.	Boulder
*McLean, Gladys E.	Boulder
McLeskey, Mrs. Willie	Sweet Springs, Missouri
McLin, Inez V.	Kansas City, Missouri
McLin, Roberta	Kansas City, Missouri
McMullen, Nellie	Hutchinson, Kansas
McMurtrey, Thelma	Hartshorne, Oklahoma
McQuown, Lorene	Walters, Oklahoma
McRoberts, Velma Retta	Wichita, Kansas
McShane, William Patrick	Boulder
McWilliams, Mrs. L. E.	Sharpsburg, Iowa
*Mabee, Ray	Boulder
*Mabee, Zell Forest	Boulder
MacArthur, Eunice S.	Atoka, Oklahoma
MacArthur, Earle T., B.S.	Atoka, Oklahoma
Madick, Ethel M.	Kansas City, Missouri
Madison, Earl C.	Britton, Oklahoma
Madison, Lenore Carolyn	Britton, Oklahoma
Maedgen, Osee, A.B.	Brownwood, Texas
Mahaffey, Leita	Dallas, Texas
Mahaffie, Ella M.	Kansas City, Kansas
Mairs, Mary	Kinsley, Kansas
Malloy, Cecil J.	Laverne, Oklahoma
Malloy, Muriel J.	Laverne, Oklahoma
Mann, Baxter	Oak Grove, Missouri
Mann, Ruth J.	Hastings, Nebraska

NAME	RESIDENCE
Mansfield, Clara L.....	Ardmore, Oklahoma
Marley, E. Pearle.....	Anderson, Indiana
Marmann, Aileen.....	Memphis, Tennessee
Marquardt, Selma.....	Omaha, Nebraska
Marsh, Lelia Fern, B.Pd.....	Kansas City, Missouri
Marshall, Pauline, A.B.....	Denver
Martin, Irene.....	Duncan, Arizona
Martin, Rose.....	Kansas City, Missouri
Mashaw, Alline.....	Ruston, Louisiana
Mason, James Homer.....	San Angelo, Texas
*Mason, Marian, A.B.....	Boulder
Massey, Mary Velma.....	Dallas, Texas
Mathews, Lucretia.....	Kansas City, Kansas
Matthews, Pearle.....	Dallas, Texas
Mattoon, Edith D., A.B.....	Lawrence, Kansas
*Mauntel, Grace Elizabeth.....	Alva, Oklahoma
May, Elva M.....	Erie
May, Evalyn.....	Newton, Kansas
May, Jennie S.....	Memphis, Tennessee
*Mayall, James Tully.....	Boulder
Mays, Alice.....	Henderson, Texas
Medcalf, Juanita.....	Marlow, Oklahoma
Meier, Alice, A.M.....	Marshall, Minnesota
Mendenhall, Ethel.....	Oil Hill, Kansas
*Meredith, Lawrence Cornelius, A.B.....	Boulder
Merkel, Eva.....	Ellsworth, Kansas
Merritt, Hazel Dell.....	Medford, Oklahoma
Metcalf, Roy F., A.B.....	Wichita, Kansas
Meyer, Everett R.....	Lawrence, Kansas
Middogh, A. Chloe.....	Lawrenceville, Illinois
Millard, Mrs. Agnes.....	Enid, Oklahoma
Millard, Madge.....	Enid, Oklahoma
Miller, Elsie.....	Blue Hill, Nebraska
Miller, Ethel.....	St. Joseph, Missouri
Miller, Frances S., B.S.....	Palmyra, Missouri
Miller, Margie.....	Harlan, Iowa
Miller, Mary L.....	Kansas City, Missouri
Miller, Robena.....	Hutchinson, Kansas
Miller, Virda.....	Burlington, Iowa
Mitchell, Charles A., Jr.....	Clinton, Missouri
Mitchell, Ida.....	Kansas City, Kansas
Mitchell, Margaret N.....	Rapid City, South Dakota
Mock, Blanche.....	Altus, Oklahoma
Moden, Ella Christena.....	Waterville, Kansas
*Mohr, Clifford L.....	Conneautville, Pennsylvania
*Moller, Carl L.....	Mapleton, Iowa
*Moncrieff, James Elwood.....	Boulder
Moncrieff, Lela.....	Boulder
Montgomery, Bess C.....	Grove City, Pennsylvania
Moore, Fannie Anita.....	Columbia, Missouri
*Moore, Isaac L.....	Holbrook, Arizona
Moore, Janie Cecile, A.B.....	Coldwater, Mississippi
Moore, Katherine Louella.....	Humboldt, Kansas
Moore, Maniza, A.B.....	Coldwater, Mississippi
Moore, Ruth B.....	Holden, Missouri
Moorman, Attie D.....	Kansas City, Missouri
Moorman, Mrs. Eugenia Ringo, B Pd.....	Kirksville, Missouri
Morelock, Mabel.....	Van Buren, Arkansas
Morgan, Ada Mary.....	Silvis, Illinois
Morgan, Edith Anne.....	Girard, Kansas
*Morning, Elizabeth.....	Denver
Morris, Clara.....	Marion, Kansas
Morris, Jonnie, B.L.....	Fernwood, Mississippi
Morris, Myra.....	Denver
Morris, Rella Maby.....	California, Missouri

NAME	RESIDENCE
Morrissey, Maude L.	Alta, Iowa
Morton, Madge	Chase, Kansas
Morton, Zella, B.S.	Wagoner, Oklahoma
Mossman, Madge C., Ph.B.	Newark, Ohio
Mounger, Lueline	Columbia, Mississippi
Mouser, Marcides	Laclede, Missouri
Muirhead, Mary, B.S.	Toledo, Iowa
Muller, Mrs. Ida, B.S.	Frederick, Oklahoma
Muller, William E.	Frederick, Oklahoma
Munger, Miss Willis Russell	Kansas City, Missouri
Murphy, Edith M.	Kearney, Nebraska
Murphy, Stella F.	Abilene, Kansas
Murray, Mrs. Edith	Longmont
Mustin, Louisa	Augusta, Georgia
Myers, Stella E.	Boulder
Naff, Blanche	Redvale
Nagel, Bertha, A.B.	Vermilion, South Dakota
Necessary, Florence	Kansas City, Missouri
Neff, Hazel	Gilman City, Missouri
Neiman, Margaret Alice, B.S.	Whitewater, Kansas
Nelson, Mrs. Bessie M.	Muskogee, Oklahoma
Nelson, Effie	Vesper, Kansas
Nelson, Esther Elizabeth, B.Pd.	Denver
Nelson, Glenn O.	Arcadia, Kansas
Nelson, Margarette C.	Wichita, Kansas
Nelson, Nora	Longmont
*Nelson, Ruth, B.Pd.	Delta
Neubauer, Greta	Hildreth, Nebraska
Newman, Ruby Floy	Union Church, Mississippi
*Nicholas, Howard Lloyd	Boulder
Noble, Anne Louise	Flagstaff, Arizona
Noble, Golda	Plattsmouth, Nebraska
Nobles, Annie Leila	Simsboro, Louisiana
*Noggles, Ruth	Boulder
Norrie, Lottie	Sabetha, Kansas
Norton, Clara, B.S.	Lincoln, Nebraska
Norville, Josephine	Chillicothe, Missouri
Nutt, George Alphonso	Boulder
Oglesby, Sadie	St. Joseph, Missouri
Oliver, Frances R., A.B.	Denver
Olmsted, Grace Sarah	Gregory, South Dakota
Olsen, Julius, Ph.D.	Abilene, Texas
Oman, Clinton Howard, A.B.	Garnett, Kansas
O'Toole, Irene	Chicago, Illinois
Overlees, Faye	Bartlesville, Oklahoma
Overlees, Lynn	Bartlesville, Oklahoma
Owens, Alice Bernice	Madison, Nebraska
Pace, Bonnie	Troup, Texas
Packer, Geneva	Pittsburgh, Pennsylvania
Packer, Muriel D.	Pittsburgh, Pennsylvania
Pafford, Bernice	Hutchinson, Kansas
Page, Emma B.	Evansville, Indiana
*Page, Henry Anthony, B.S. (E.E.)	Denver
Palmer, Jessie O.	Oklahoma City, Oklahoma
Palmer, May	Baton Rouge, Louisiana
Palmer, Phena M.	Britton, Michigan
Parker, Carl H.	Clinton, Michigan
Parker, Eva Jo	Custer, Oklahoma
Parks, Cecil	Goddard, Kansas
Pate, Clarence Hugh	Walnut, Kansas
Patterson, Veda	St. John, Kansas
Paul, Vera, A.B.	Dow City, Iowa
Payne, Mary June	Boulder
Peak, Florence A.	Cherokee, Kansas

NAME	RESIDENCE
Peareson, Philip E.....	Richmond, Texas
Peck, Caryl G.....	Limon
*Peck, Doris M.....	Denver
Peebles, Margaret.....	Woodward, Oklahoma
Peery, Frances Evelyn.....	Hebron, Nebraska
Pegues, Juliet, B.S.....	Oxford, Mississippi
*Pehlstrom, Ruth, A.B.....	Boulder
Peirce, Mrs. Alice M.....	Denver
Pelzell, Pansy.....	Harper, Kansas
Pendry, Eliza R.....	Chicago, Illinois
Penn, Milton Ottmer.....	Santa Fe, New Mexico
Perks, Mazie.....	Springfield, Missouri
Perry, Lillian A., A.B.....	Howard, Kansas
*Peyton, Marguerite, A.B.....	Boulder
Phalen, Dora.....	Irvington, Nebraska
Phalen, Eva.....	Irvington, Nebraska
Phelps, Mrs. Kate F.....	Hobart, Oklahoma
Philbrook, Elizabeth, A.B.....	Ardmore, Oklahoma
Phillips, Bertha Ellen, B.S.....	Manhattan, Kansas
Phillips, Carre N.....	Bartlesville, Oklahoma
Phillips, Gladys.....	Watonga, Oklahoma
Pickett, Bethsue.....	Kansas City, Missouri
Pickens, Verne Lyle, B.S.....	Maryville, Missouri
Pierce, S. Cornelia.....	Du Quoin, Illinois
Pierson, Daisy.....	Sterling, Kansas
Pinkston, Pauline A.B.....	Waxahachie, Texas
Pinney, Margaret Frances, A.B.....	Erie, Pennsylvania
Poe, Frances E., B.Pd.....	Boulder
Ponder, Kathleen.....	Waco, Texas
Porter, Nancy May.....	Pittsburgh, Pennsylvania
Posey, Deborah.....	Sulphur Springs, Texas
Poteet, Annie Adair.....	San Angelo, Texas
*Potter, Dorothy.....	Boulder
Potter, Evelyn Marie, B.S.....	Boulder
Pounds, Mintie.....	Humboldt, Tennessee
*Powars, Frank G., A.B.....	Brighton
Powell, Paul A.....	Whitesville, Missouri
*Powless, Mrs. Anna F., A.M.....	Alma
Prendergast, Ethel.....	Chicago, Illinois
Presson, Velista.....	Omaha, Nebraska
Price, Delia C.....	Boulder
Price, Laura M.....	Bristol
*Price, Mary Ellen.....	Cripple Creek
Prizer, R. M.....	Clyde, Kansas
Ptak, Alma S., A.B.....	Tyndall, South Dakota
Puckett, Anna Lou.....	Oklahoma City, Oklahoma
*Purmort, Eunice Beryl.....	Boulder
*Putcamp, Anna E.....	Denver
Pyburn, Nita.....	Dodson, Louisiana
Pyle, Mrs. Ruth.....	Clapham, New Mexico
Quackenbush, Charles H., B.S.....	Pittsburg, Kansas
Quick, Clara.....	Quick City, Missouri
Quinlan, James B.....	Boulder
*Ramsdell, James Williams.....	Lakewood, New Jersey
Randlett, Marion Randell.....	Lancaster, Texas
Rankin, Ora Belle.....	Belpre, Kansas
Ray, Dora Arena.....	Atlanta, Kansas
Ray, Kelly Pearl.....	Panhandle, Texas
Ray, Oriye.....	Atlanta, Kansas
Rayford, Ray (Miss).....	Henderson, Texas
Raynolds, Lucy.....	Waco, Texas
*Reading, Helen.....	Boulder
Rector, Leonora.....	Mena, Arkansas

NAME	RESIDENCE
*Red, Mary B., A.B.	Boulder
Redmond, Katherine H.	Kansas City, Missouri
Reed, Consuelo	Boulder
Reed, Olive A.	Kansas City, Missouri
*Reedy, Rachel R., B.Pd.	Boulder
Reeves, Lois	Dallas, Texas
Reid, Nell L.	Kansas City, Missouri
*Reiter, Perry R.	Boulder
Reynolds, Margery	Fort Smith, Arkansas
Reynolds, Mary Ida	De Soto, Missouri
Reynolds, J. P., A.B.	Dallas, Texas
Rhyne, Nona	Denton, Texas
Rice, Bernadine	New Orleans, Louisiana
Rice, Bloomer B., B.Pd.	Grand Island, Nebraska
Rice, Lesco Lee	Huntington, West Virginia
Richards, Edith Mae	Hartshorn, Oklahoma
Richards, Lela	Healdton, Oklahoma
Richardson, Esther H., A.B.	Hutchinson, Kansas
Richeson, Mary Carter	St. Louis, Missouri
Richart, Alma	Nickerson, Kansas
*Ricketts, Elizabeth, Ph.B.	Boulder
Ridings, Mary A., A.B.	Lexington, Missouri
Riley, H. Winslow	Boulder
*Ripley, George Lewis	Denver
Rishel, Erma Winifred	Newton, Kansas
Ritchie, Frances Ogden	St. Joseph, Missouri
Roach, F. Madeline	Deming, New Mexico
Robb, Dorothy, A.B.	Mt. Vernon, Iowa
Roberts, Grace B.	Douds, Iowa
Roberts, Florine	Enid, Oklahoma
Roberts, Kate	Donna, Texas
Roberts, Lota	Port Arthur, Texas
Robin, Anna	Chicago, Illinois
Robinson, Florence	Ransom, Kansas
Rogers, Blanche	Kansas City, Missouri
Rogers, Ethel Margarette	Pryor, Oklahoma
Rogers, Gertrude	Braggs, Oklahoma
Rogers, Lela Emily	Independence, Missouri
Rogers, Mildred M.	Independence, Missouri
Roller, Ernest, A.B.	Wichita, Kansas
*Rood, Vivian	Julesburg
*Rose, Clarence W.	Boulder
Rose, Ethel N.	Humboldt, Kansas
Ross, Annie J.	Winfield, Kansas
Ross, Josephine, B.S.	Jacksonville, Illinois
Roth, Lillian Bertin	Troy, New York
Rothengatter, Georgia	Indianapolis, Indiana
*Rothwell, William David	Denver
*Rouner, Thomas J.	Genoa
Rowe, Abbie E.	Fremont, Nebraska
Rowe, Ida E., A.B.	Dodge City, Kansas
Rowell, Miriam A., A.B.	Kearney, Missouri
Rowland, Myrtle	San Antonio, Texas
Ruhlman, Marie, AB.	Detroit, Michigan
Rule, Irene	Chattanooga, Tennessee
Runyan, Grace, A.B.	Boulder
Russ, Witten B.	San Antonio, Texas
Russell, Genevieve	Lexington, Missouri
Russell, Louella Mary	Sarahsville, Ohio
*Russell, Martha Montagne	Boulder
Russell, Mary E.	Boulder
Russell, Veva, A.B.	Wood River, Nebraska
Rutt, Frances	St. Louis, Missouri

NAME	RESIDENCE
Sabin, James N.....	Denver
Sams, Kate J.....	Kansas City, Missouri
Sams, Mary D.....	Kansas City, Missouri
Sanderford, Alma, A.B.....	Belton, Texas
Sandidge, Frances.....	Houghton, Louisiana
Savage, Elfie.....	Floydada, Texas
Sawyer, Mrs. Harriet P., B.L.....	St. Louis, Missouri
Sawyer, Jennie.....	Colorado Springs
Sawyer, M. Eldora, A.B.....	Denver
Scarlett, Lila.....	Lake Charles, Louisiana
Scheen, Alice.....	Bienville, Louisiana
Scheen, Annie.....	Bienville, Louisiana
Scheen, Laura.....	Bienville, Louisiana
Scheen, Willie B.....	Bienville, Louisiana
*Scheidegger, Elvin Franklin.....	Fort Morgan
Schmidt, Emma.....	Hillsboro, Kansas
Schmucker, Mary.....	El Dorado, Kansas
Schneider, Clara Beth, A.M.....	Canton, Ohio
Schneider, Flora Ruth, A.M.....	Canton, Ohio
Schowalter, Olga.....	Halstead, Kansas
Schranz, Edna Lydia.....	Rocky Ford
Schumacher, Gertrude M.....	Orleans, Nebraska
Scott, Ruth B.....	Emporia, Kansas
Scott, Willena Porter.....	Boulder
Searight, Mrs. Katherine Ella.....	Pittsburgh, Pennsylvania
Sears, Merle S.....	Ada, Oklahoma
*Secrest, Estalene.....	Arvada
Seery, Gertrude J.....	Evanston, Illinois
Seffens, Beulah.....	Memphis, Tennessee
Seiferth, Fanny C., A.B.....	New Orleans, Louisiana
Settle, Paul Vane.....	Harrisonville, Missouri
Shell, Leila May, A.B.....	Okolona, Mississippi
Shepherd, Frankie Mae.....	Burkburnett, Texas
Sheridan, Mary E.....	Chicago, Illinois
*Shoaf, Dorothy M.....	Taylor, Texas
Shoaf, R. Leonard.....	Taylor, Texas
Shoaf, Mrs. Robert L.....	Taylor, Texas
*Shobert, Warren L.....	Bloomsburg, Pennsylvania
Shontz, Emma.....	Kansas City, Missouri
Silvers, Anna Lillian.....	Butler, Missouri
Simpson, Mary.....	Wood River, Nebraska
Simpson, Ruby Viola.....	Auburn, Nebraska
Sims, Mary J.....	Round Rock, Texas
Sirpless, Eleanor, A.M.....	Lawrence, Kansas
Skeete, Lucille.....	Houston, Texas
Skinner, Cynthia B.....	Du Quoin, Illinois
*Slane, Ruth, A.B.....	Saguache
Slater, Mary M.....	Grand Island, Nebraska
Small, Mabel.....	Wichita, Kansas
*Smercheck, Lillian.....	Boulder
Smith, Bess.....	Oklahoma City, Oklahoma
Smith, Elsie Jane.....	Pittsburgh, Pennsylvania
Smith, Mrs. Estelle R.....	Ensley, Alabama
Smith, Gertrude Augusta, A.B.....	Denver
Smith, Hart.....	El Dorado, Kansas
Smith, Howard Bradley.....	Davenport, Nebraska
Smith, Irma H., B.Pd.....	Arkansas City, Kansas
Smith, Jennie M.....	Ardmore, Oklahoma
Smith, Leola Seelye.....	Vernon, Texas
Smith, Lillian Ray.....	El Dorado, Kansas
Smith, Maragaret.....	Lawton, Oklahoma
*Smith, Margaret Virginia.....	Grand Junction

NAME	RESIDENCE
Smith, Martha Persis.....	Kansas City, Missouri
Smith, Mary Alpha.....	Chanute, Kansas
Smith, Mary Dee.....	Grandview, Texas
Smith, Mary Louise, A.B.....	Mt. Hope, Kansas
Smith, Meda.....	Durant, Oklahoma
Smith, Mildred Emily.....	Burlingame, Kansas
Smith, Mydra Jane.....	Larned, Kansas
Smith, Mrs. Ruth.....	Powell, Wyoming
Smith, Susie V.....	Mt. Hope, Kansas
Smith, William Ernest.....	Belton, Missouri
Smith, Winnie D.....	Ruston, Louisiana
Snell, Florence.....	Mound City, Missouri
Snider, Beulah, B.S.....	Lindsay, Oklahoma
Snider, Jennie, B.Pd.....	Campbell, Missouri
Snider, Vandelia, B.Pd.....	Campbell, Missouri
Snow, Laura.....	Donna, Texas
Snyder, Clara Mae.....	Soldier, Kansas
Snyder, Mrs. Clarice P.....	Hutchinson, Kansas
Snyder, Myrtle.....	Polo, Illinois
*Solt, Lois.....	Denver
*Spangler, Henry Roy.....	Boulder
Spangler, Lillie Mae.....	Kaufman, Texas
Sparrowhawk, Charlotte.....	Wakefield, Kansas
Speer, Elizabeth.....	Dallas, Texas
Speer, Marie Louise.....	Dallas, Texas
Spence, Virginia.....	Gainesville, Texas
*Spencer, Pearl Conger.....	Boulder
*Spencer, Richard C.....	Boulder
Spickard, Evelyn G.....	Jackson, Mississippi
Spragins, Lyde H., A.B.....	Fort Worth, Texas
*Squire, Ralph.....	Boulder
Srygley, Ola Pauline.....	Fort Worth, Texas
Stafford, M. Ellen.....	Kansas City, Missouri
Standifer, Catherine.....	Waxahachie, Texas
Stanley, May, B.S.....	Pueblo
Staples, Florence A.....	Kansas City, Missouri
Starbird, Adele Chomeau.....	Clayton, Missouri
Starkey, Jesse Bryan.....	Post City, Texas
Starr, Bertha.....	Morgan, Texas
Steele, Jeanne.....	Whiteagle, Oklahoma
Steele, Viola.....	Mangum, Oklahoma
Steeley, Ora Antoinette.....	Hiawatha, Kansas
Stenstrom, Ellen Marie, A.B.....	Lindsborg, Kansas
Stephens, Frances.....	Owensboro, Kentucky
Stephens, Leta.....	Dallas, Texas
Stephens, Lois.....	Idabel, Oklahoma
Stephens, Ora L.....	Deepwater, Missouri
Stephens, Philip H.....	Red Lion
Sterling, Helen.....	Tulsa, Oklahoma
Stevens, Clara.....	Fort Worth, Texas
Stevenson, Lottie Elizabeth, B.L.....	Sitka, Alaska
Stevenson, Perry Lee.....	Leadville
Stewart, Elizabeth.....	Philadelphia, Pennsylvania
Stewart, Mrs. Ema.....	Houston, Texas
Stewart, Helen.....	Hutchinson, Kansas
Stewart, Pearl.....	California, Pennsylvania
Stittsworth, Carrie B.....	Milford, Kansas
Stokes, Ethel L.....	Boulder
Stone, Ella.....	Springfield, Missouri
Stone, Mrs. Vae A., B.Pd.....	College Station, Texas
Stormont, Eunice J., A.B.....	Sterling, Kansas
Strauss, Elsie M.....	Aurora
Streitz, Anna Marie.....	Millard, Nebraska

NAME	RESIDENCE
Suderman, Irma H.	Newton, Kansas
Suesens, Mayme E.	Burlington, Iowa
Sumerlin, Bertha Louise	Indianapolis, Indiana
Summers, Merrill	Beatrice, Nebraska
Sutton, Mrs. Ethel E.	Boulder
Swanson, Mildred Margaret	Hermon, Nebraska
Swenson, Reuben T., A.B.	Denver
Swenson, Sylvia C.	Pueblo
Switzer, Agnes	Grand Island, Nebraska
Switzer, Edna	Grand Island, Nebraska
*Talbert, Dorothea E.	Boulder
Talbot, Lillian	Ruston, Louisiana
Talbutt, Florence, A.B.	Greencastle, Indiana
Talmadge, Ida L.	Hutchinson, Kansas
*Tarkoff, Harry	Boulder
Tartsch, Delia	Omaha, Nebraska
Taylor, Bessie Iona	Winfield, Kansas
Taylor, Earl G.	Fort Collins
Taylor, Frances	Owensboro, Kentucky
Taylor, Minnie	Leavenworth, Kansas
Terry, Pearl	Colorado Springs
Test, Mrs. Alice B.	Boulder
*Teutenberg, Mrs. Eula Green	Boulder
Teuton, Mrs. Lucy	Port Arthur, Texas
Thayer, Elsie Frances	Kensington, Kansas
Thomas, Lotta M., A.B.	Greencastle, Indiana
Thomas, Nannie	Home, Kansas
Thompson, Sarah A.	Hastings, Nebraska
Thomsen, Marie	Tilden, Nebraska
*Thorpe, Violet E.	Boulder
Tibbels, Sybil Virginia	Mound City, Missouri
Tibbles, Averil	Mound City, Missouri
*Tighe, Thomas H. Jr.	Chicago, Illinois
Tikker, Lena	Abilene, Texas
Tipton, Pearl	Barnett, Missouri
*Tisdell, Bertram B.	Greeley
*Tomlinson, Doris Lanier	Memphis, Texas
Toogood, Dorothea	Indianola, Nebraska
*Tour, Isabelle S., A.B.	Pueblo
Tour, Mrs. J.	Pueblo
*Townley, Thena E.	Colorado Springs
Travis, Rena Alice	Garrison, Kansas
Traylor, Florence Hamilton, B.S.	Conway, Arkansas
Trenoweth, Laura, A.B.	Central City
Trezevant, Blanche	Delhi, Louisiana
*Trezise, Edith	Boulder
*Trezise, Ruth	Boulder
Tribble, Elizabeth	Lake City, Florida
Trible, Blanche Leona	Independence, Kansas
Trowbridge, Charles Russell	Denver
Tucker, Clara, B.S.	Denton, Texas
Tucker, Mrs. Laura E.	Pawhuska, Oklahoma
Tupper, Abbie	Riverton, Nebraska
Turner, Bessie	Kansas City, Missouri
*Turney, Beth	Loveland
Tuttle, Jewell, A.B.	Commerce, Texas
Twichell, Lula	Kansas City, Missouri
*Twombly, Lena Marie	Fort Lupton
Underwood, John B.	Towanda, Kansas
Unruh, Katie Marie	Newton, Kansas
Utey, Charles H., A.M.	Boulder
Utz, Gladys	Mena, Arkansas
*Vagnino, Louis S.	Denver

NAME	RESIDENCE
Vail, Mrs. Kenyon C.....	Denver
Vandervort, Isabel M., A.B.....	Bloomington, Illinois
Vaniman, Wilbur F., A.B.....	McPherson, Kansas
Vaughn, Martha Marie.....	Sapulpa, Oklahoma
Vermilion, Rosa Florence.....	Ransom, Kansas
Vernon, James O.....	Ada, Oklahoma
Vernon, Julia, Ph.B.....	McKinney, Texas
Vertrees, Mrs. Marion.....	Donna, Texas
Vincent, Dora E., A.B.....	Sioux Falls, South Dakota
Vise, Mrs. Ethel.....	Denison, Texas
Voshelle, Louetta.....	El Dorado, Kansas
*Vowell, Catherine, A.B.....	Denver
Waggoner, Bess.....	Oklahoma City, Oklahoma
Wagner, Edith.....	Ellsworth, Kansas
Wagner, Ella Jane.....	Ellsworth, Kansas
*Wagner, Henry J.....	Boulder
*Wagner, John Albert.....	West Bend, Wisconsin
Wahlenmaier, Floyd C.....	Kansas City, Kansas
*Walbridge, C. Friedrich.....	Durango
Walden, Ada Ruth.....	Memphis, Tennessee
Walden, Mrs. Delia B.....	Little Rock, Arkansas
Walden, Pansy.....	Port Arthur, Texas
Walker, Agesilaus Wilson, Jr.....	Dallas, Texas
Walker, Hall.....	Ranger, Texas
*Walker, M. Eugenia.....	Boulder
Walker, Maud.....	Newton, Kansas
Walker, Ruth E., B.S.....	San Juan, Texas
Wallace, Hettie V., A.B.....	Colorado, Texas
Wallace, Ruth.....	Kansas City, Missouri
Walling, George L.....	Austin, Texas
Walliser, George Francis.....	West Chicago, Illinois
Walsh, James R.....	Boulder
Walter, Hulda Mae, B.Pd.....	Glenwood Springs
Walton, Joseph H., Ph.B.....	Leadville
Ward, Beatrice.....	Shenandoah, Iowa
Ward, Mary.....	De Soto, Missouri
Ward, Nora.....	Dallas, Texas
Warren, Beatrice.....	Norfolk, Nebraska
Washington, Lucy.....	Alta, Louisiana
Waterbury, Ethel.....	Clinton, Iowa
Watson, Martha Maude.....	Frankfort, Kansas
Watson, Olive.....	Kansas City, Missouri
Watts, Susie P.....	Farmington, Missouri
Webb, Cora Lee.....	Owensboro, Kentucky
Webb, Ethel, A.B.....	Orme, Tennessee
Weed, Agnes G.....	Austin, Texas
Wehman, Florence.....	Burlington, Iowa
*Wellman, Augusta Lee.....	Mangum, Oklahoma
Wells, Bertha I.....	Owensboro, Kentucky
Wenberg, Beatrice.....	Fullerton, Nebraska
Werling, Camille Eugen, A.M., LL.D.....	Arlon, Belgium
Westfall, Mary, A.B.....	Bartlesville, Oklahoma
Westfall, Pearl Dutchess.....	Spencer, Indiana
Wetherell, Maude M.....	Chickasha, Oklahoma
*Wheatley, George H.....	Arvada
Wheeler, Alice.....	Denver
Wheeler, Clarissa, A.B.....	Boulder
White, Della May.....	Arkansas City, Kansas
White, Frances B.....	Castleton, Kansas
*White, Helen.....	Boulder
White, Iva E.....	St. Joseph, Missouri
Whitman, Mary.....	Dubach, Louisiana
*Whitney, Caroline.....	Boulder

NAME	RESIDENCE
Whitney, Frank A.....	Denver
Wickham, Eleanor S.....	Norwalk, Ohio
Wierwill, Leona S.....	El Dorado, Kansas
Wignall, Goldie.....	Albia, Iowa
Wilcox, Ada May, A.B.....	Nebraska City, Nebraska
Wild, Julianna Marie, Ph.B.....	Chicago, Illinois
Wild, Lillian H.....	Crete, Nebraska
Wilder, Elizabeth.....	Boulder
Wildman, Miss Glen.....	Eckeleys
Wilkins, Cora.....	Groveton, Texas
Wilkins, Vinny.....	Groveton, Texas
Will, Freda J.....	Pittsburgh, Pennsylvania
Will, H. Eunice.....	Upland, Nebraska
Will, LeAnna.....	Pittsburgh, Pennsylvania
*Williams, Allen Magee.....	Boulder
Williams, Almo.....	Rosewood, Texas
Williams, Ann.....	Memphis, Tennessee
Williams, Miss Davis.....	Fort Worth, Texas
Williams, Elizabeth.....	Grandview, Texas
Williams, Fern L.....	Superior, Nebraska
Williams, Frances.....	Monroe City, Missouri
Williams, Grace.....	Dayton, Ohio
Williams, Grace F.....	Merna, Nebraska
Williams, Helen.....	Stella, Nebraska
*Williams, Jennie.....	Ucross, Wyoming
Williams, Maude H.....	Merna, Nebraska
Williams, May E.....	Burrton, Kansas
Williams, S. Metella.....	Burden, Kansas
Willis, Anna T.....	Emporia, Kansas
Willis, Gussie B.....	Dayline, Louisiana
Willis, Jesse.....	Fairview, Oklahoma
Willis, Margaret.....	Amarillo, Texas
Wilson, Alleen, A.B.....	Cameron, Missouri
Wilson, Mrs. Cora L., A.B.....	Parkville, Missouri
Wilson, Ethel Mary.....	Grandbury, Texas
Wilson, Irene B.....	Osceola, Missouri
Wilson, Lena Velma.....	Jacksonville, Illinois
Wilson, Lattie, B.Pd.....	Springfield, Missouri
Wilson, Mable.....	Chicago, Illinois
Wilson, Matthew Hale.....	Parkville, Missouri
Wilson, Neva Grace.....	Arcadia, Nebraska
Wilson, Virginia.....	Palestine, Texas
Winchell, Cora M., B.S.....	New York City
Windham, Betty.....	Duncan, Arizona
Wine, Alice.....	Denver
Wines, Lizzie.....	Vernon, Texas
Winkelman, Magdalen.....	Chandler, Oklahoma
Wise, Mrs. Cenie.....	Boulder
Wise, Cosmo Clyde, Ph.B., LL.B.....	Boulder
Witherspoon, Mrs. Anna Collins.....	Wichita Falls, Texas
Woland, Julia, B.Pd.....	Greeley
Wolaver, Florence E.....	Evanston, Illinois
Wolf, Clara Laura, B.S.....	Geneseo, Kansas
Wolfe, Mrs. Carrie R.....	Emporia, Kansas
Womack, Florence.....	El Dorado, Texas
Womack, Mary Evelyn.....	Gueydan, Louisiana
Womble, Ethel.....	Dallas, Texas
Wonnell, Florence Mildred.....	Towanda, Kansas
Wood, Emma T.....	Nisland, South Dakota
*Wood, Inez.....	Boulder
Wood, Mary Katharine.....	Waco, Texas
Woodward, Eula Mary.....	Wichita Falls, Texas
Woodward, Trellis.....	Wichita Falls, Texas

NAME	RESIDENCE
Wooten, Corinne.....	Denver
Wooten, Henry H., A.B.....	Chickasha, Oklahoma
Wright, Gertrude.....	Denver
Wright, William Elza.....	Esbon, Kansas
Yarbrough, Floyd.....	Winfield, Kansas
Yeager, Mary.....	Cleburne, Texas
Yeates, Alberta.....	Boulder
Young, Annie L.....	Kansas City, Missouri
*Young, Mildred Arline.....	Boulder
*Zahorsky, Theodore Saunders.....	St. Louis, Missouri

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COLLEGE OF ENGINEERING

NAME	RESIDENCE
*Alford, Reuel C.....	Castle Rock
*Andrews, W. W.....	Pawhuska, Oklahoma
Arthur, William R., LL.B.....	Boulder
*Bahret, Clarence A.....	Denver
Barnard, Charles Ray.....	Wichita Falls, Texas
*Bohlman, Clarence H.....	Otoe, Nebraska
*Bowman, Donald W.....	Breckenridge
*Boylston, DuBose.....	Denver
*Brown, Jackson, Jr.....	Topeka, Kansas
*Burk, Harold D.....	Sterling
*Burroughs, E. R.....	Boulder
*Butler, Kenneth A.....	Summit, New Jersey
*Cart, Ward B.....	Lamar
*Catterson, Frehn H.....	Boulder
*Chamberlin, Merton H.....	Craig
*Chason, John Wesley.....	Ochlochuee, Georgia
*Clifford, Joseph Michael.....	Derby
*Cooper, Rolla K.....	Boulder
*Cowger, Winslow L.....	Boulder
*Crocker, Leslie H.....	Denver
*Crowne, Irving H.....	Forest Hills, Long Island, N. Y.
*Dean, Allen T.....	Clayton, New Mexico
*Dick, Henry Victor.....	Denver
*Dirmeyer, Richard.....	Boulder
*Divine, Howard E.....	Palisade
D'Oench, Ralph F.....	St. Louis, Missouri
*Dougherty, Vivian C.....	Salida
*Eastom, Frank A.....	Denver
*Frantz, Frank, Jr.....	Denver
Garvin, Paul D.....	Boulder
Geer, Ralph N.....	Foss, Oklahoma
Gertsen, Melvin Falk.....	Boulder
*Given, Jacqueline.....	Pueblo
*Goss, Cecil G.....	Boulder
*Graham, Charles W., Jr.....	Boulder
*Haffey, Patrick J.....	Durango
Herbert, Thomas G.....	Denver
*Horner, Arthur S.....	Topeka, Kansas
*Huntington, Everett S.....	Denver
Hutchins, Hamilton E.....	Boulder
*Johnson, Alan H.....	Denver
*Kerr, Francis P.....	Denver
*Kirkpatrick, Paul W.....	Denver
*Lallie, Anthony S.....	Louisville
McGrew, Robert M.....	Caney, Kansas
McQuown, Kerr C.....	Walter, Oklahoma
*MacIntyre, W. J.....	Florence
*Mellors, Tom.....	Boulder
Morgan, Ithiel G.....	Silvis, Illinois

NAME	RESIDENCE
Nugent, W. E.....	Rochelle, Illinois
*Paland, Louis.....	Denver
Perley, Raymond Clyde.....	Moberly, Missouri
*Peterson, William C.....	Denver
*Porter, Russell W.....	Boulder
*Prince, Catherine.....	Denver
Purl, R. Keith.....	Carrollton, Illinois
Putnam, Russell Caldwell, A.B.....	Indianapolis, Indiana
*Redd, Samuel B.....	Boulder
*Richardson, William E.....	Duluth, Minnesota
Richter, George L.....	Denver
*Robertson, Oscar L.....	Denver
*Saegart, Ernest R.....	Washington, D. C.
*Schrepferman, Chester.....	Denver
*Scudder, Felix.....	Denver
*Sellers, Jesse E.....	Boulder
*Shapiro, Isadore.....	Denver
*Smetzer, Bernard O.....	Denver
Sorenson, Andy E.....	Denver
*State, Constantine N.....	New York City
Stevenson, Ross J.....	Kansas City, Missouri
*Stiles, Frank Luther.....	Boulder
*Stone, C. Arthur.....	Boulder
*Suess, Willard F.....	Denver
*Summers, William Glen.....	Denver
*Trinnier, C. Marvin.....	Denver
*Tucker, James R.....	Boulder
*Warner, Arthur Howard.....	Boulder
*Whitney, Russell L.....	Boulder
*Wilch, Gabriel B.....	Boulder
*Woods, Robert Glen.....	Boulder
*Young, Dwight.....	Denver

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VOCATIONAL STUDENTS†

NAME	RESIDENCE
*Anderson, Hurlburt.....	Bridgeport, Connecticut
*Atkinson, Roy G.....	Sunrise, Wyoming
*Bemis, Roy.....	Broadview, Montana
*Berquist, Arthur.....	Salt Lake City, Utah
*Boone, Robert.....	Carlisle, Indiana
*Bradford, William E.....	Telluride
*Brewster, Cecil J.....	Boulder
*Bril, Pantaleon.....	Pasay Rizal, P. I.
*Butcher, Fred P.....	Boulder
Cameron, John.....	Paterson, New Jersey
*Connelly, Louis A.....	Denver
*Coots, Dewie O.....	Nara Visa, New Mexico
*Curry, Roy E.....	Monument
*Davis, George A.....	Red Lodge, Montana
*Dodge, W. H.....	Denver
*Domke, George.....	Boulder
*Doolittle, L. A.....	Boulder
*Dressor, C. F.....	Rocky Ford
*Dye, Donald E.....	Dayton, Ohio
*Edwards, Calvin F.....	Colorado Springs
*Elder, Joseph.....	Boulder
*Falck, Edwin O.....	Boulder
*Fetter, Elmer.....	Mesa
Frey, William W.....	Basalt

† Registered in vocational courses, not of college grade, offered in co-operation with the Federal Board for Vocational Training.

NAME	RESIDENCE
*Friele, Raymond F.....	Boulder
*Fugate, W. F.....	Weir City, Kansas
*Gibson, Frederick W.....	Boulder
*Glenn, Euell.....	Chattanooga, Tennessee
*Gutierrez, Alphonse.....	Raton, New Mexico
*Hale, Harry G.....	Fort Sumner, New Mexico
*Harman, Ralph E.....	Boulder
*Hughey, Louis D.....	Boulder
*Johnson, Richard B.....	Grand Forks, North Dakota
*Kouns, Andrew Scott.....	Rocky Ford
*Law, George C.....	Pueblo
*Leahy, Michael J.....	Boulder
*Lotspeich, R. R.....	Sheridan, Wyoming
*Lowe, Alvin B.....	Denver
*Lynch, Ambrose M.....	Denver
*McCowan, Charles Henry.....	Boulder
*McCown, Van.....	Boulder
*McGlashen, W. A.....	Boulder
*Madison, Jess E.....	Limon
*Marklin, J. H.....	Denver
*Miles, William C.....	Boulder
*Mitchell, Bertran B.....	Boulder
*Oszkowski, Constantine.....	Denver
*Peterson, Fred H.....	Boulder
Reed, Cecil.....	Boulder
*Reeves, William Sumter.....	Brunswick, Georgia
*Schmidt, Joseph W.....	Boulder
*Shayewitz, Morris.....	Boulder
*Shellady, John A.....	Boulder
*Smith, Marion A.....	Turkey, Texas
*Szczepanik, Stanley.....	Boulder
*Terefeuko, Alexander.....	Bound Brook, New Jersey
*Thomas, William Erwin.....	Trinidad
*Tucker, Ivan W.....	Boulder
*Westbrook, Thaddeus W.....	Portsmouth, Virginia
*Wilson, David E.....	Boulder
*Wilson, Herbert B.....	Canon City
Wilson, Waldo Monroe.....	Canon City
Youngberg, Charles.....	Boulder

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GRADUATE SCHOOL

NAME	RESIDENCE
Abbitt, William Henry, A.B.....	Hopkinsville, Kentucky
*Abbott, Franz D., B.Litt.....	Boulder
Adams, William Alfred, M.D.....	Denver
Ahlstedt, Elmer, A.B.....	Lindsborg, Kansas
*Alden, Ruth Viola, A.B.....	Wyoming, Iowa
Anderson, Ernest Mitchell, B.S.....	Merino
Anderson, Hattie Rebecca, A.B.....	La Crosse, Wisconsin
*Anderson, Jessie May, A.M.....	Boulder
Bachman, Irma, A.B.....	Indianapolis, Indiana
*Bair, Dorothy H., A.B.....	Denver
Barber, Evon M., Jr., A.B.....	Wichita Falls, Texas
Bauer, Harry L., B.S.....	Newell, South Dakota
*Bennett, Rexie E., A.M.....	Boulder
Binninger, Marie K., A.B.....	Indianapolis, Indiana
Brous, Louis P., B.S., M.S.....	Kansas City, Kansas
*Butts, Mrs. Nettie Cook, A.B.....	Muskogee, Oklahoma
Calhoun, Mary J., Ph.B.....	Birmingham, Iowa
*Campbell, Robert J., A.M.....	Boulder
*Canfield, Robert H., B.S. (C.E.).....	Denver

NAME	RESIDENCE
*Carmichael, Emmett Byran, A.B.	Stratton
Chamberlain, Daisy Ethel, A.B.	Grinnell, Iowa
*Chase, John, A.B., M.D.	Denver
Cilek, Caroline Catherine, A.B.	Hay Springs, Nebraska
Clark, Grace W., A.B.	Farragut, Iowa
Clark, Lucy Jane, A.B.	Chelsea, Oklahoma
Clough, Wilson O., A.B.	Schenectady, New York
*Cluphif, Maude Mae, A.B.	Boulder
Coie, Mae F., A.B.	Tingley, Iowa
Collins, Ida Jane, A.B.	Abilene, Texas
*Cook, Benjamin F., B.S.	Denver
Copeland, Effie Lou, A.B.	Blackwell, Texas
*Copeland, George H., A.B.	Colorado Springs
*Cornell, Benjamin D., A.M.	Boulder
Cornell, Mrs. Beulah G., A.B.	Boulder
*Crawford, Ivan C., B.S. (C.E.), C.E.	Boulder
Cunningham, Fenner N., A.B.	Indianola, Iowa
*Dean, Cleophile Bell, Ph.D.	Boulder
Ditmars, Maud, Ph.B.	Denver
Dolch, Isabel Scherer, A.B.	St. Louis, Missouri
*Dummeier, Edwin F., A.B.	Boulder
Eigler, Charles O., M.D.	Denver
Ewers, Lou, A.B.	St. Louis, Missouri
Falk, Mary, B.S.	Mitchell, South Dakota
Fleming, Lois, A.B.	Wheatland, Wyoming
Ginn, Edna Young, A.B.	Fortescue, Missouri
Ginn, James Nelson, A.B.	Fortescue, Missouri
*Groom, Emma, A.B.	Boulder
Haines, S. Deborah, A.M.	Chickasha, Oklahoma
Hale, Ernest Thomas, A.B.	Cambria, Wyoming
Hamlin, Pearl, A.B.	Springfield, Missouri
Hanna, Mrs. Sarah C., A.B.	Sterling, Kansas
*Hanson, Herbert C., A.M.	Boulder
Harford, Crystal, B.L.	Pelatuma, California
Hargett, Anderson J., A.M.	Boulder
Hawkinson, Lily O., A.B.	McPherson, Kansas
Healey, Claire, A.B.	Elgin, Illinois
Hemkens, Beatrix, A.B.	Waco, Texas
Hodgson, Roberta, A.M., B.S.	Athens, Georgia
Hoover, Borden P., A.B.	Denver
*Howe, William Warren, A.B.	Pueblo
*Hughes, Violet Ann, A.B.	Henryetta, Oklahoma
Jelks, Clarence Clay, B.S.	Sand Springs, Oklahoma
*Jessup, Andrew Simes, B.S., A.B.	Cheyenne, Wyoming
Johnson, Angela F., B.S.	Chicago, Illinois
Johnson, Egbert G., B.S., M.D.	Boulder
Jones, Martha Lou, A.B.	Bailey, Tennessee
Keal, Marie, A.B.	Hastings, Nebraska
King, Anna, A.B.	Abilene, Texas
Lewis, Gladys A., B.S.	Superior, Nebraska
Linscheid, John E., A.B.	Arlington, Kansas
McAllister, Hazel, A.B.	Newton, Kansas
McCarty, Minnie E., A.B.	Fort Worth, Texas
McChristy, Laura Ellen, A.B.	Dodge City, Kansas
McClanahan, Margaret Hope, A.B.	Delta
McClellan, Herbert M., B.S.	Rocky Ford
McCrea, Grace, A.B.	Sterling, Kansas
*McCuskey, Mabel, A.B.	Boulder
Marshall, Elma McLean, A.M.	Enid, Oklahoma
Marshall, Frank Hamilton, A.M.	Enid, Oklahoma
*Martin, Lucy N., A.B.	Como
Mendenhall, Elliott Marion, A.B.	Plano, Texas
Morgan, Fred Buckner, B.S., A.B.	Greeley

NAME	RESIDENCE
*Muse, Amy, A.B.....	Petersburg, Virginia
Nasten, Herbert B., M.D.....	Springer, New Mexico
*Norton, Irene, A.B.....	Fowler
Paugh, Muriel M., A.B.....	Fort Scott, Kansas
Perley, Elinor Inez, B.S.....	Moberly, Missouri
Perley, Mary Deane, B.S.....	Moberly, Missouri
Reece, Richard Herb, B.S.....	Socorro, New Mexico
*Reinertsen, Stephanus G., A.B.....	Alta, Iowa
Rhodes, Sara Louise, A.B.....	Winterset, Iowa
Roller, Ernest, A.B.....	Wichita, Kansas
*Rowland, Ben W., A.B.....	Boulder
Sandmeyer, Paul O., A.B.....	Mt. Union, Iowa
*Sawhill, John A., A.B.....	Boulder
Schilling, Jessie, A.B.....	Fort Worth, Texas
Seaton, Alexander, A.B.....	Holison, Montana
Sewell, Rebecca, A.B.....	Wills Point, Texas
*Skinker, Murray Fontaine, B.S. (E.E.).....	Denver
Small, Clare Hebard, A.B.....	Brooklyn, New York
Smith, Mary Louise, A.B.....	Mt. Hope, Kansas
*Solt, Helen, A.B.....	Denver
Steckel, Minnie L., A.B.....	Woodbine, Kansas
Stephenson, Carol, A.B.....	Burlington, Kansas
Stevenson, Dwight Hull, A.B.....	Kansas City, Missouri
*Stine, Elizabeth Machlin, B.S.....	Boulder
*Stone, Elinore Cowan, A.B.....	Boulder
Stone, Wren A., B.S.....	West Line, Missouri
Stryker, Mary M., A.B.....	Boulder
*Tarkoff, Irma, A.B.....	Boulder
*Thomas, Hazel, A.B.....	Boulder
Thomes, Isabel, A.B.....	Kansas City, Missouri
Todd, Marian S., A.B.....	Burlington, Iowa
*Unsel, George P., A.M.....	Boulder
*VanValkenburgh, Horace B., M.S.....	Boulder
Vedder, N. Maude, B.S.....	Boulder
*Vincent, Leona, A.B.....	Victor
Walker, Earl, A.B.....	Dexter, Kansas
Watson, Ruth Viola, A.B.....	Nashua, Iowa
West, Mildred G., A.B.....	Keokuk, Iowa
Wheless, Myrtis Lea, A.B.....	Magnolia, Mississippi
Whitcher, Florence M., A.B.....	Concordia, Kansas
Whitney, Bessie F., A.B.....	Miltonvale, Kansas
Wickham, Harriott B., Ph.B.....	Wheatland, Wyoming
Wickham, Havergal, A.B.....	Sapulpa, Oklahoma
Wilder, Anne C., A.B.....	Kansas City, Missouri
Willis, Willet Ranney, A.B.....	Pueblo
*Worcester, Dean A., A.B.....	Emporia, Kansas
Work, Lida, A.B.....	Fort Morgan
*Wright, Laurence, A.B.....	Boulder
Yetter, Edna, A.B.....	Nickerson, Kansas

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SCHOOL OF MEDICINE

NAME	RESIDENCE
*Bauer, H. M., A.B.....	Denver
*Brown, Lionel B.....	Fairmont, Nebraska
Buford, Ben R.....	Sulphur Springs, Texas
Casey, John Bunyan.....	Greenville, Texas
*Chambers, Kathrine Lee, A.B.....	Boulder
Chesmore, Harry P., M.D.....	Colorado Springs
*Coakley, Harry E.....	Denver
*Collier, Douglas R.....	Denver
Dysart, Ben Robnett, A.B.....	Columbia, Missouri

NAME	RESIDENCE
*Eastlake, Alfred C.....	Boulder
*Estrin, Morris M.....	Denver
*Greene, Laurence Whitridge.....	LeSueur, Minnesota
*Ham, Della	McClane
*Harvey, Edward Lee	Denver
Johnson, Henrietta, B.S., A.B.....	Houston, Texas
Laughlin, James L., A.B.....	Bunnell
*Lunsford, Charles Julian.....	Dallas, Texas
McClendon, Sam James	Denver
Mendenhall, Elliott Marion, A.B.....	Plano, Texas
*Nelson, Sam.....	Denver
Parsons, Alfred Morris	Palestine, Texas
Power, Paul H.....	Pauls Valley, Oklahoma
Price, Laura M.....	Bristol
*Scott, J. Terrell, A.M.....	Lynchburg, Virginia
Wade, T. W.....	Dallas, Texas
*Westinghouse, Clarence.....	Denver

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SCHOOL OF LAW

NAME	RESIDENCE
Apple, Clay Richard, A.B.....	Tamaleo, Illinois
*Beer, Dee Howard.....	Boulder
*Bennett, R. Shad.....	Boulder
*Beverley, James.....	Boulder
Bowen, Cyrus West, B.S.....	Brunswick, Missouri
Bryan, Banard Dashiell.....	Abilene, Texas
*Carroll, James V.....	Iowa City, Iowa
*Chapman, Elbridge Gerry, A.B.....	Denver
*Coonradt, Arthur V.....	Boulder
Cox, Richard D.....	Austin, Texas
Devries, Herbert J. S.....	Freemont, Nebraska
*Douglass, Curran Fletcher.....	Malta Bend, Missouri
*Downing, Richard Edmund.....	Denver
Early, John L., A.B.....	Wilmore, Kentucky
*Elam, Roy J.....	Boulder
Field, Robert Michael, A.B.....	San Antonio, Texas
*Fischer, John C.....	Boulder
*Flynn, Edward James.....	Jamaica Plains, Massachusetts
*Foster, Embree H.....	Boulder
George, Walter Eugene.....	Boulder
*Glendinning, Don K.....	Boulder
Graves, Ireland, B.S., LL.B.....	Austin, Texas
Green, Perry Roberts.....	Boulder
*Grutter, Walter Luke, A.B.....	Boulder
Hall, Hally-Heaton.....	Fort Collins
*Hanks, Bryan C.....	Wichita Falls, Texas
*Hedrick, Roland Leslie.....	Craig
*Hiler, Ivan L.....	Glenns Ferry, Idaho
*Hinkley, Henry Lawrence, A.B.....	Sterling
*Hogan, Thomas P.....	Gunnison
Howell, Earl Linwood.....	DeLeon, Texas
King, B. W.....	Graham, Texas
*Kochevar, Matt J.....	Crested Butte
Lowrey, Leonford Grady.....	Sonora, Texas
Mason, William Wallace.....	San Angelo, Texas
*Moore, John Randle.....	Campbell, Missouri
*Nicholas, Howard Lloyd.....	Boulder
*Norton, Leonard S.....	Arvada
O'Hara, Thomas W.....	Wheatland, Wyoming
Park, William Jay.....	Boulder
Parker, Raymond Chester.....	Winnsboro, Louisiana

NAME	RESIDENCE
*Penney, Benjamin George, A.B.....	Pueblo
*Rosner, David.....	Boulder
Rowley, Charles Reed.....	Cleveland, Ohio
*Scheidegger, Lloyd W.....	Fort Morgan
*Shaw, Earle Lionel.....	Denver
*Shobert, Warren L.....	Bloomsburg, Pennsylvania
*Smith, Feay Burton.....	Montrose
*Stone, Clifford H., A.B.....	Gunnison
Strasburger, Henry Wiley.....	Temple, Texas
*Stratton, Marjorie A.....	Boulder
Swartzberg, Morris Louis.....	Fort Worth, Texas
*Thompson, Glenn S., A.B.....	Boulder
*Toelle, Wallace Walter.....	Bloomington, Indiana
*Wagner, John Albert.....	West Bend, Wisconsin
*Warrington, Jesse G.....	Boulder
Williams, Lon T., A.B.....	Boulder

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COLLEGE OF PHARMACY.

NAME	RESIDENCE
*Burgess, Charlotte H., Ph.G.....	Boulder
*Burgman, Emily.....	Locke, New York
*Jaquiss, Hazel Dell, Ph.C.....	Paonfa
*Maier, Leonard R.....	Salida
*Wilson, Melchior H.....	Denver
*Wood, Armilda Jane.....	Boulder
*Ziegler, R. Kirk.....	Denver

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CLASSIFICATION OF STUDENTS

BY STATES

Alabama	4	Montana	12
Arizona	12	Nebraska	113
Arkansas	28	Nevada	1
California	17	New Hampshire	1
Colorado	2,399	New Jersey	9
Connecticut	2	New Mexico	37
District of Columbia.....	4	New York	25
Florida	3	North Carolina	5
Georgia	11	North Dakota	6
Idaho	20	Ohio	48
Illinois	81	Oklahoma	140
Indiana	41	Oregon	3
Iowa	92	Pennsylvania	34
Kansas	288	South Carolina	1
Kentucky	15	South Dakota	14
Louisiana	40	Tennessee	20
Maryland	1	Texas	257
Massachusetts	3	Utah	8
Michigan	21	Virginia	13
Minnesota	5	Washington	2
Mississippi	21	West Virginia	3
Missouri	227	Wisconsin	16
		Wyoming	56

BY COUNTRIES

Alaska	1	Persia	1
Belgium	1	Philippine Islands	6
China	3	Porto Rico	1
France	1	Portugal	1
Newfoundland	1		

4175

SUMMARY OF ATTENDANCE, 1920-1921

COLLEGE OF ARTS AND SCIENCES—

Seniors	73	
Juniors	200	
Sophomores	331	
Freshmen	701	
Specials	58—	1363

COLLEGE OF ENGINEERING—

Seniors	47	
Juniors	105	
Sophomores	194	
Freshmen	216	
Specials	28	
*Vocational Students	123—	713

GRADUATE SCHOOL

88

SCHOOL OF MEDICINE—

Fourth Year	14	
Third Year	16	
Second Year	23	
First Year	31	
Specials	8—	92

TRAINING SCHOOL FOR NURSES—

Third Year	5	
Second Year	6	
First Year	6—	17

SCHOOL OF LAW—

Third Year	20	
Second Year	32	
First Year	28	
Specials	13—	93

COLLEGE OF PHARMACY—

Fourth Year	5	
Third Year	5	
Second Year	11	
First Year	9—	30

SUMMER QUARTER, 1920

1779

Deduct for names counted twice (326 of these in 1920
Summer Quarter)

4175

337

CORRECTED TOTAL

3838

EXTENSION DIVISION

2168

* Registered in vocational courses, not of college grade, offered in co-operation with the Federal Board for Vocational Training.

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